

FLIGHT

The
AIRCRAFT
ENGINEER
and
AIRSHIPS

First Aero Weekly in the World.

Founder and Editor: STANLEY SPOONER

A Journal devoted to the Interests, Practice, and Progress of Aerial Locomotion and Transport

OFFICIAL ORGAN OF THE ROYAL AERO CLUB OF THE UNITED KINGDOM

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EDITORIAL COMMENT.



RENOWNED at its inception the "Million Pound Monopoly Company," and referred to in the agreement made by the Air Ministry with the British, Foreign, and Colonial Corporation, Ltd., as the Imperial Air Transport Co., Ltd., the new combine which took over, on Tuesday of this week, the services hitherto operated by four separate companies, will be known, in future, as Imperial Airways, Ltd. This is certainly a less cumbersome title than that suggested in the agreement, and, doubtless, the company will speedily adopt and be known by the initial letters "I.A.L." Incidentally, it may be noted that, by coincidence or otherwise, these letters are the same as the initial letters of the Instone Air Line. The new company, it may be recalled, has been formed with a capital of £1,000,000, while the Government is committed to another million spread over ten years, the amounts payable by the Government each year being so apportioned as to become smaller and smaller every year. A certain minimum mileage has been stipulated before these subsidies become payable.

As we have repeatedly pointed out in these columns, we are very much against monopolies of any sort, nor do we venture to think that the present company will prove an exception. At the same time, it was becoming obvious that the old arrangements did not promise the progress and development which is necessary if the advantages of commercial aviation are to be fully realised, and after long deliberations, and the views of many bodies and individuals having been obtained, the Hambling Committee came to the conclusion that the formation of a single powerful company offered the best solution to the problem. Time alone will show whether or not this view is correct. In the meantime, the new company is now a *fait accompli*, with the following board of Directors:—Sir Eric Geddes (Chairman), Lord Invernairn, Sir George Beharrell, Sir Herbert Hambling and Major J. W. Hills (representing the Air Ministry), Colonel F. Searle (Managing Director), Colonel Barrett-Lennard, Sir Samuel Instone, and Mr. Hubert Scott-Paine.

DIARY OF FORTHCOMING EVENTS

Club Secretaries and others desirous of announcing the dates of important fixtures are invited to send particulars for inclusion in the following list:—

- April 23 Visit to National Physical Laboratory, Teddington. Inst. Ae. E.
April 25 Aero Golfing Society Team Match, Oxhey Golf Club.
May 31–June 9 Third Czecho-Slovak International Aeronautical Exhibition, Prague
June 15 Gordon Bennett Balloon Race, Belgium.
June 21 F.A.I. Conference Opens, Paris.
July 24–Aug. 10 Tour de France for Light 'Planes.
Aug. 4 Aerial Derby at Lympne
Sept. 8–13 Light 'Plane Competitions at Lympne

On the board, presumably the first three gentlemen represent the financial side, Sir Herbert Hambling (whose committee advocated the formation of the company) and Major Hills are to look after the Air Ministry's interests, the former probably on the financial and the latter on the technical and operational side. The four last named, of course, represent the four absorbed companies—Daimler Airways, Handley Page, Ltd., the Instone Air Line, and the British Marine Air Navigation Co., Ltd., respectively. It will be noted that no constructional firm is represented on the board of directors. Thus, the new company may be presumed to be entirely unbiassed in the matter of flying stock, and to be out to get the best machines obtainable irrespective of by whom they are designed or built. It will be recollected that in the agreement (a *résumé* of which was published in *FLIGHT* of January 3, 1924), it is laid down that the new company is not to undertake the manufacture of machines or engines, except with the consent of the President of the Air Council. Thus, there is probably no great danger of the monopoly being extended to include the manufacture of flying stock by the company itself, as the present Air Minister, Lord Thomson, is scarcely likely to give such consent.

As regards the operational side, the new company starts with very great possibilities, and the managing director, Colonel Frank Searle, has shown in an experimental way (while running the Daimler Airway) what can be done in the way of intensive flying. It is hardly to be doubted but that he will take every advantage of the wider scope now offered, and see to it that British air lines are extended beyond the more or less experimental services hitherto operated.

It is regrettable that the starting of Imperial Airways, Ltd., should have been somewhat clouded by the disagreement between the flying and ground staffs on the one hand and the company on the other. Arguments have been advanced by both sides in proof of the justice of their respective views, and, as usual in such cases, there is something to be said for both points of view. It is to be hoped that the dispute will be settled without delay to the satisfaction of all, and personally we have not the slightest doubt that an agreement acceptable to both will be reached.

Without wishing to take active part in the controversy, we do feel it our duty to point out that what has been accomplished in the past has been in a very large measure due to the skill, determination, and loyalty of the pilots who have operated the air liners, from the days of the A.T. & T. up to the present time. Theirs was the duty to show that flying was safe, and until that fact was demonstrated, obviously, the most splendidly-organised and economically-run air service could not hope to carry on. Safety and regularity are still primary considerations, and in the development of new routes and the extension farther afield of present lines the question of skilled pilots will still remain one of the most important. In other words, for several years to come these pilots will still be doing pioneer work, and the day when an air line pilot is nothing more than an aerial chauffeur is still a very long way off. That being so, it is essential that the scale of pay should be such as to attract the right kind of pilot, so as to ensure highest efficiency and, therefore, safety, and that he is not worried by financial considerations during the relatively short period of his flying days.

Flying and Wembley

Judging by a communication sent by the Secretary of the Air League of the British Empire to the Press, it appears that the unique opportunity offered by the forthcoming British Empire Exhibition at Wembley of demonstrating to the millions of visitors the possibilities of civil air transport is likely to be missed. The secretary of the League, Mr. Douglas G. H. Gordon, points out that the authorities concerned have failed to produce any organised scheme of flying in connection with the exhibition, and states that private enterprise was approached by the Air Ministry, an offer of £4,000 being made if the private company would take over a site near the Stadium and render it suitable as an aerodrome, from which flying could be carried out daily and services to Croydon, or even to the Continent, could be operated. Mr. Gordon states that the scheme fell through, mainly owing to the failure of the exhibition authorities to grant the necessary assistance, and also because it was discovered that the offer made of a grant of £4,000 could not be fulfilled, as it would have involved an infringement of other concessions, while the difficulty of employing Government money in a commercial undertaking arose as a stumbling block. Mr. Gordon asks whether it is not possible, even at this late hour, for the authorities to realise the Imperial importance of making aerial industry a leading feature of the exhibition.

It is known that the Society of British Aircraft Constructors has had the matter of exhibiting at Wembley under consideration, and that the Royal Aero Club is doing its best to ensure that one or more air races shall be held, the routes of which will be laid near or over Wembley. This appears, however, to be as far as we have got. Surely concerted action should be organised even now to bring before the visitors to Wembley the realities of flying. It is little use expecting visitors to travel to one of the London aerodromes to witness flying. People simply will not be bothered to do that. Unless aviation can be taken actually to the exhibition itself the great opportunity will be lost. There is still time to arrange a flying week at Wembley if a suitable ground sufficiently near can be found, but unless the exhibition authorities can be made to grasp the importance of this, it is difficult to see how the aviation community can do much, other than to promote the races to which reference has been made.

R.Ae.C. Gold Medal

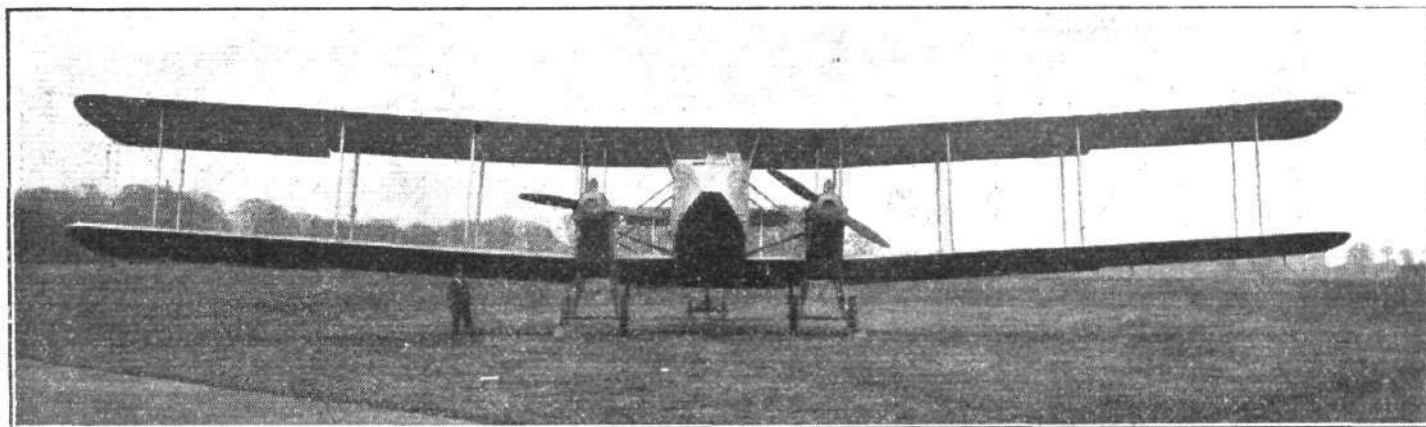
The presentation of the Royal Aero Club's Gold Medal to Lieut.-Col. Frank McClean at the Annual Meeting of the Club on March 31, will be received with general satisfaction. Lieut.-Col. McClean has rendered from the earliest days extremely valuable services to aviation, and he has always done so in his usual unassuming way. There is no need to remind readers of *FLIGHT* that it was due to Lieut.-Col. McClean's generosity through the Royal Aero Club that the historic flying-ground at Eastchurch came into being, and that the first British pilots were taught to fly there. This is going back a good many years, and in the interval the recipient of this year's Royal Aero Club Gold Medal has continued the good work commenced in the early days, although he has not always been accorded the credit which he deserved. We congratulate Lieut.-Col. McClean on the well-deserved honour which the Club has bestowed upon him.

THE ARMSTRONG-WHITWORTH "AWANA" TROOP-CARRIER

Two Napier "Lion" Engines

ON several occasions during the last year or two the general public has been promised an opportunity of seeing the "Awana" troop-carrier, designed and built by the Aircraft Section of Armstrong-Siddeley Motors, Ltd., of Coventry, but each time something has turned up to prevent the machine from putting in an appearance. If we recollect aright, the last occasion when the "Awana" was expected to appear in public was at last year's Aerial Pageant at Hendon. The

horizontal struts are bolted to these plates. Bracing is by tie-rods, and it should be noted that the structure is unusual in that an auxiliary strut is used between two main struts, the bracing passing through the centre of the auxiliary strut, which latter serves to steady the longeron between main strut attachments. An arrangement similar in principle was, it may be remembered, used in the wing bracing of the earlier "Spad" machines.



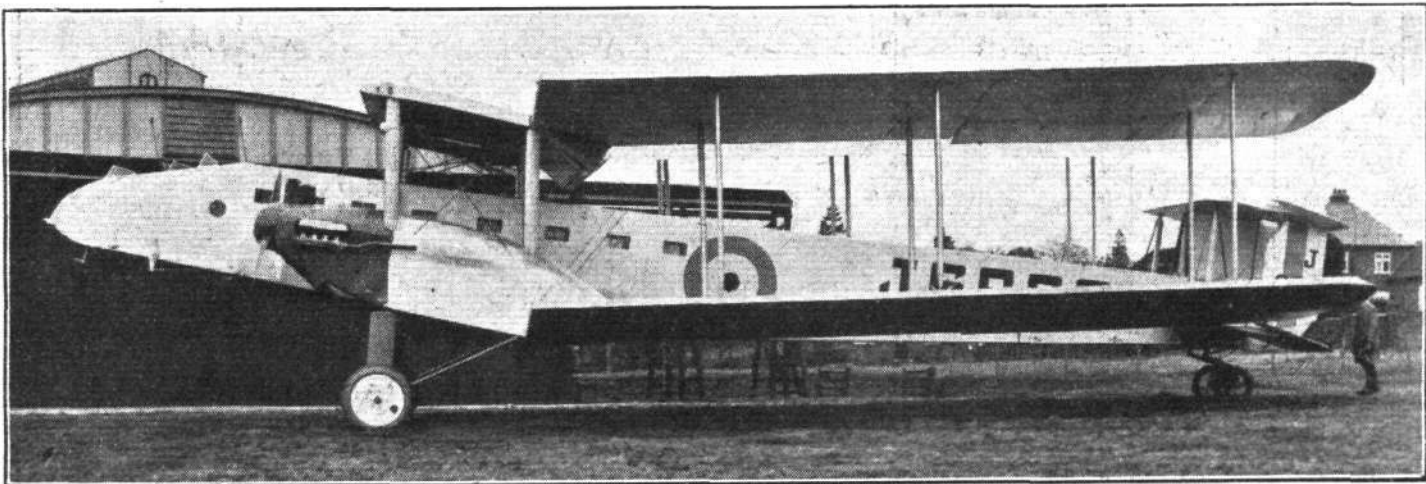
THE ARMSTRONG-WHITWORTH "AWANA": Front view.

machine did not, however, take part in the show for some reason or other, and it is not until now that it has become possible to publish a detailed description of the machine, illustrated by photographs and general arrangement drawings.

The Armstrong-Whitworth "Awana" is a large twin-engined biplane designed to act as a troop-carrier. In general outline the machine is of orthodox design, and the feature which impresses most on first sight is the size. Measuring 105 ft. 6 ins. from tip to tip, and with an overall length of 68 ft., the "Awana" is one of the largest of modern land machines. The total loaded weight is 18,450 lbs., or nearly 8½ tons. The upper and lower planes are of equal span,

In the extreme nose there is accommodation for the crew (pilot and engineer), while the cabin extends from behind the pilot's cockpit to a point about 9 ft. aft of the trailing edge of the lower plane. The cabin has accommodation for 25 troops with their kit, the seats being arranged 'bus fashion along the sides of the cabin with an open gangway down the centre. Access to the cabin is through a trap-door in the floor of the fuselage.

The wings are of more or less standard construction, with wooden spars and ribs. Some of the fittings, however, are of considerable interest, as, for instance, those occurring at the hinges of the folding wings. One such joint is shown in



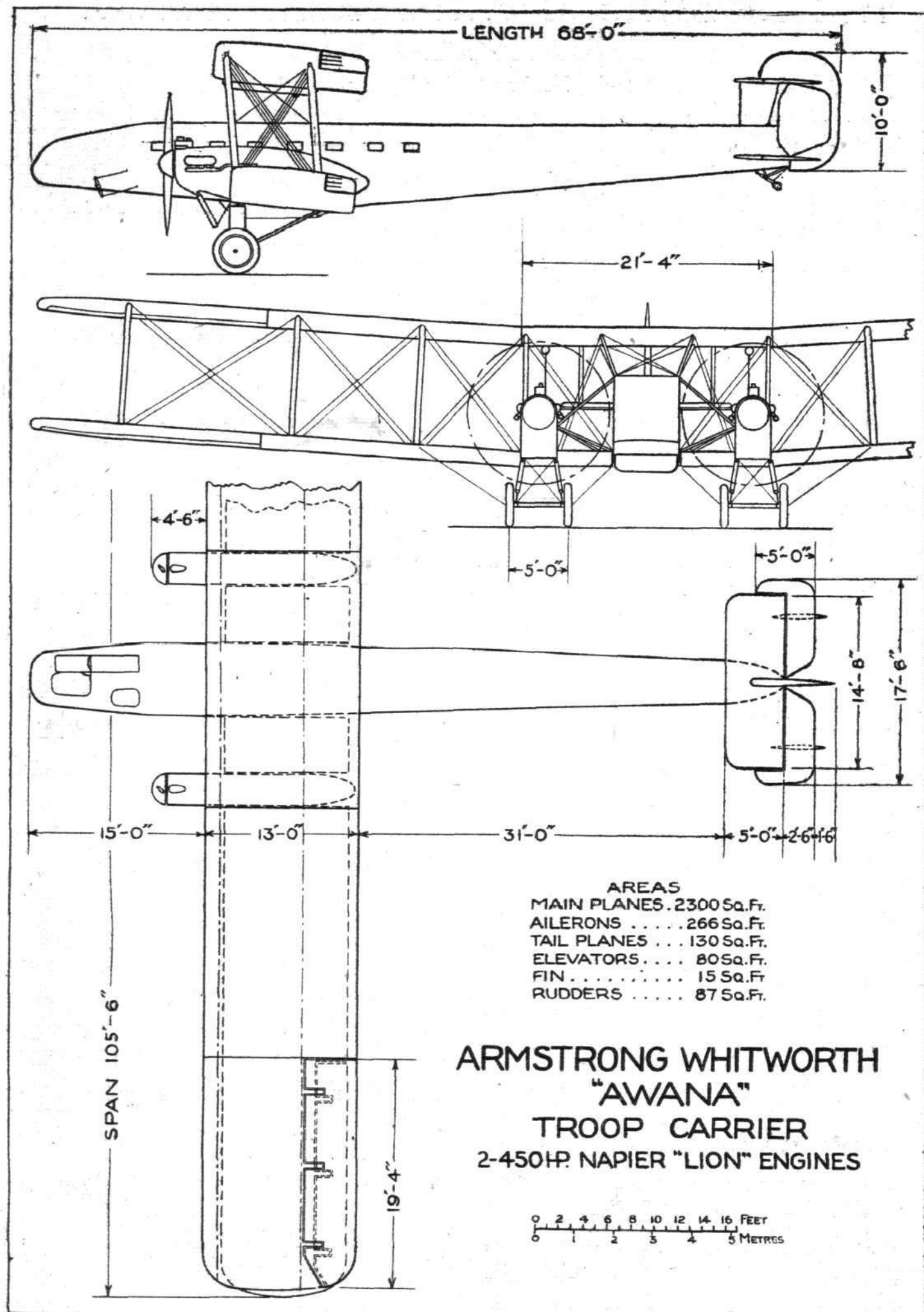
THE "AWANA": Side view of machine with wings folded. Note clean lines of engine nacelles.

but unequal chord, that of the top plane being considerably the greater of the two.

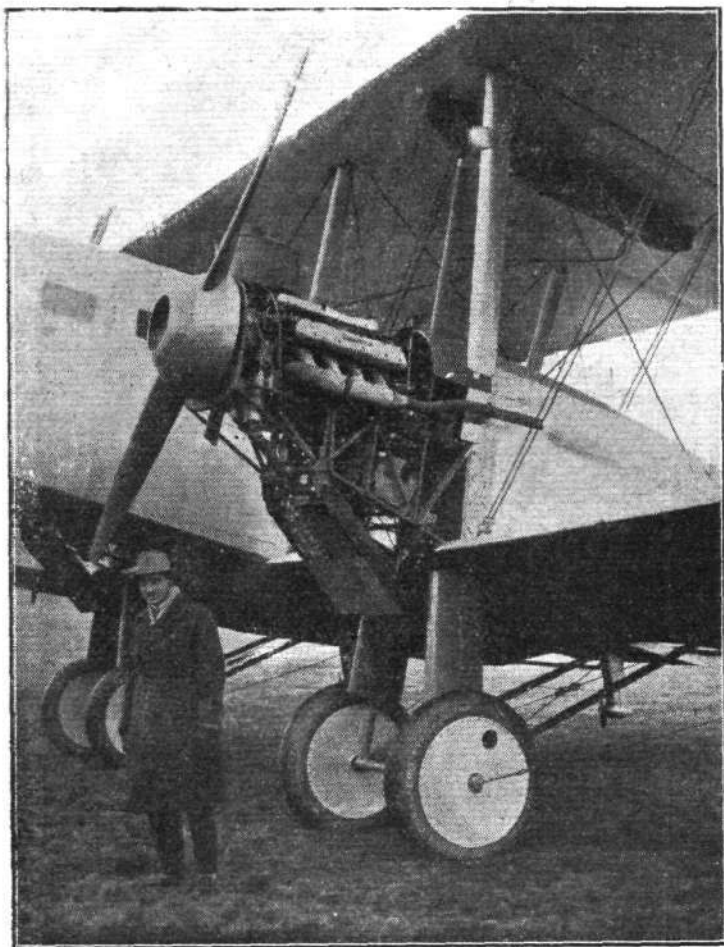
Structurally, the "Awana" is interesting on account of its composite construction, in which the fuselage is built entirely of steel tubing, while the wings are built of wood, with the exception, of course, of the usual metal fittings. One of the accompanying sketches illustrates a fairly typical fuselage clip. It will be observed that the clip surrounds the longeron, and is located by the diagonal bolt of the panel bracing. Wiring plates are welded into the space between the bent-over flanges of the clip, and the fork-ends of the vertical and

a sketch, in which the woodwork, such as ribs, etc., has been omitted in order to show more clearly the arrangement of the really interesting parts, *i.e.*, the spar box and hinge-pin attachments. The sketch should make the arrangement clear. It will be realised that with an overhang of something like 42 ft. in length the stresses set up in the hinges when the wings are folded back are likely to be somewhat severe, and that, therefore, very substantial fittings and joints are called for.

From the front elevation of the general arrangement drawings, it will be seen that there are four pairs of struts on each side, including the engine struts. The top plane is divided



THE ARMSTRONG-WHITWORTH "AWANA" TROOP-CARRIER : General arrangement drawings to scale.

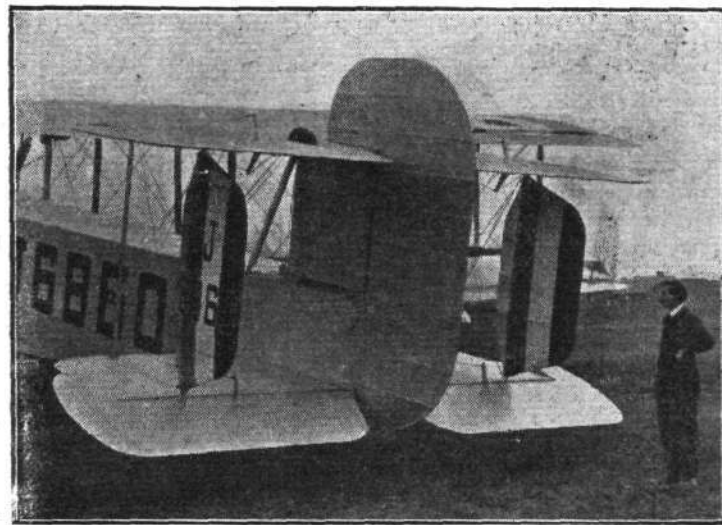


One of the Napier "Lion" Engines of the "Awana": Standing in front of the machine is Mr. Frank Courtney, who tested the "Awana" for the makers.

pivotted on the rear struts of the biplane structure. Horn-balanced elevators are hinged to top and bottom tail planes.

The Napier "Lion" engines are mounted on steel tube supports well ahead of the lower plane, and the cowling is continued aft for a considerable length, so as to form a good streamline shape. With the cowling in place and the spinner over the propeller boss, the engine nacelles are of very clean outline, broken to a small extent only by the sloping radiators just ahead of the undercarriages. The cooling can be varied by drawing up the trailing edge of the radiators until they lie nearly flush with the bottom of the nacelles, the radiators being hinged at their upper or forward end. Streamline water header tanks are mounted just behind the propeller spinners.

The main petrol tanks are carried under the floor of the fuselage, and are in the form of three cylindrical tanks enclosed in an aluminium fairing. A small service tank is placed above each engine, slung from the top plane, and



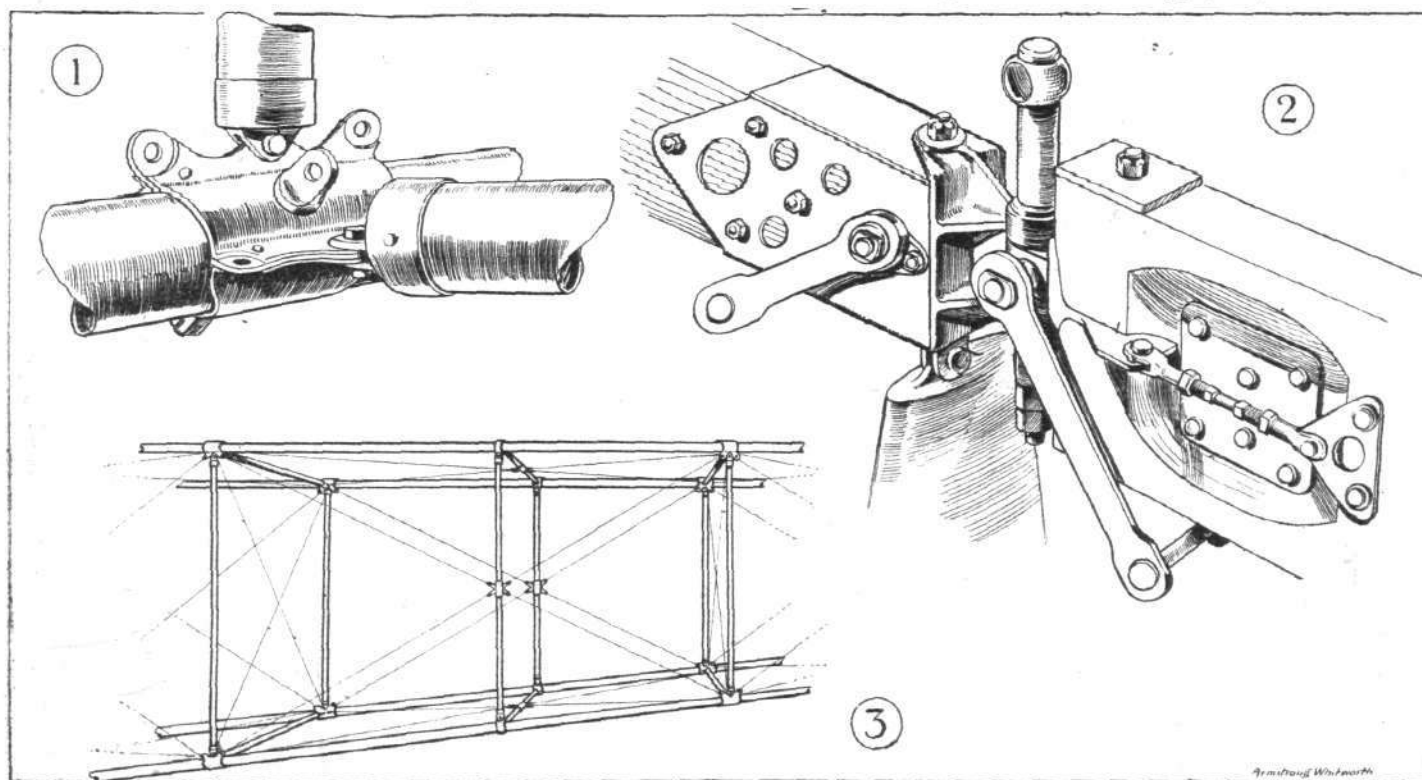
The tail planes of the "Awana."

into five sections, and the bottom plane into six. The hinges for the folding occur just outside the engine struts. Ailerons are fitted to both top and bottom planes, and are of the type mounted on brackets from the rear spar, with their leading edge projecting forward of the hinge.

The tail is of the biplane type, with a fairly small central fin and large central rudder, assisted by two side rudders

windmill-driven pumps force the petrol from the main tanks to the service tanks. The main tanks have a capacity of 192 gallons (64 gallons each) and the service tanks 50 gallons each, giving a total petrol capacity of 292 gallons. The oil tanks, carried in the engine nacelles, have a capacity of just over 9 gallons each.

The undercarriages are of normal type, *i.e.*, a two-wheeled



THE ARMSTRONG-WHITWORTH "AWANA": Some constructional details.—1. Shows a typical fuselage fitting. In 2 is seen the hinge locking pin, spar boxes, etc., at the junction of the centre-section with the end pieces of the top plane spar. 3 shows more or less in diagrammatic form the type of bracing employed in the fuselage structure.

chassis under each engine. They are, however, of the oleo-pneumatic type with the shock-absorbing gear incorporated in the front undercarriage struts. The diagonal bracing is in the rear panel, while cables run from the wheel hubs to the fuselage and to the second inter-plane strut respectively.

The main dimensions of the Armstrong-Whitworth "Awana" are indicated on the general arrangement drawings. The empty weight of the machine is 10,000 lbs., and the total loaded weight is 18,450 lbs., so that the ratio of useful load to total weight is very good. The performance figures obtained at Martlesham include the following: Speed at 3,000 ft., 97 m.p.h.; at 6,000 ft., 93.5 m.p.h.; at 8,000 ft., 89 m.p.h. The climb to 3,000 ft. occupies 10 mins. 27 secs.,

and the corresponding rate of climb is 247 ft./min. at an indicated air speed of 76 m.p.h. For the climb to 6,000 ft. (in 25 mins. 30 secs.), the corresponding figures are 160 ft./min. and 71.5 m.p.h. respectively, while the service ceiling (height at which rate of climb is 100 ft./min.) of 8,000 ft. is reached in 41 mins. 30 secs. at a speed of 69 m.p.h. The estimated absolute ceiling is 11,350 ft.

Although designed originally as a troop carrier, there does not appear to be any reason why the "Awana" should not be capable of useful work as a commercial passenger carrier. The accommodation would have to be a bit more comfortable, but the machine should carry 20 passengers in comfort at a cruising speed of somewhere around 80 m.p.h.

CANADIAN HELIUM FOR AIRSHIPS

THE High Commissioner for Canada in London has received from the Department of Mines at Ottawa, and has sent on to FLIGHT, the following article prepared by Mr. R. T. Elworthy, of the Mines Branch, in regard to the possibility of producing helium in Canada:—

"The recent survey of the helium resources of the United States by the Bureau of Mines showed that a large number of natural gases distributed through several states contain up to 0.5 per cent. of helium. A smaller number of gases were found to contain 0.5 to 1.0 per cent., and these are the only ones at present considered suitable for the commercial extraction of helium. The report states that over 50,000,000 cub. ft. of helium annually could be obtained by five or six plants, and that in an emergency this volume could be doubled.

"The cost of helium produced in the two plants erected at Fort Worth, Texas, during the latter stages of the War was from \$150-\$100 per thousand cubic feet. It is anticipated that this cost will be reduced to \$30 in the new plant to be built on the plan of the semi-commercial unit now being experimentally operated. This new plant, which produces helium of 95 per cent. purity in a single stage, was designed on the basis of work carried out in the low-temperature research laboratory of the Bureau of Mines. Altogether over \$6,000,000 has been spent on the production of helium by the United States Government.

"At the request of the British Government an investigation of the helium resources of the British Empire was commenced in 1915 under the direction of Prof. J. C. McLennan, of the University of Toronto.

"The results of this survey, published as Mines Branch Bulletin No. 31, showed that natural gas from the Bow Island field in Alberta was the richest known source in the Empire available for commercial production. This gas contained 0.33 per cent. helium. An experimental plant was erected at Calgary in 1919, where about 60,000 cub. ft. of helium of varying grades of purity was produced during four months' operation. This plant was dismantled soon after the close of the War, and no further work has been done.

"During the past year the Mines Branch of the Department

of Mines has commenced a further survey of the Canadian resources of natural gas and helium. This work has included the collection of the latest data on the helium situation. Samples of gases from new wells have already been collected and analysed by Mr. R. T. Elworthy, of the chemical division.

"Ontario and Alberta are the principal provinces in Canada in which natural gas occurs in commercial quantities. Several gases in Ontario have a helium content of about 0.3 per cent., especially those from Brant and Haldimand counties, but the supplies are from small wells in declining fields. The quantity of helium that might be extracted would be small.

"In Alberta the Bow Island field is also showing signs of exhaustion. It was calculated in 1916 that about 12,000,000 cub. ft. of helium a year could be extracted from the gas supplied to Calgary alone. This estimate was probably too large, and the present annual output would undoubtedly be much smaller, especially as the field is now only drawn upon in winter. Calgary is no longer a suitable location for an extraction plant, as the gas at present supplied to the city is a mixture of gases from the Turner Valley field and from the Bow Island field. The helium content of gas from the former field is very low.

"One new source, already discovered, is the field at Foremost, forty miles south of Bow Island. The first well drilled in this area has an open flow of 15,000,000 cub. ft. of natural gas per day, and is the largest gasser in Canada. The helium content of this gas is 0.2 per cent.

"Gas from the fields in Central Alberta, at Viking and Wainwright, only contains 0.06 per cent. Gas from Medicine Hat and Many Islands is equally low in its helium content.

"It might be possible to extract helium from natural gas in Southern Alberta to an extent of about 15,000,000 cub. ft. annually. This would supply five or six dirigibles of the present 'R' class. The cost would be proportionately greater than in the United States, where gas of 0.94 per cent. helium content is treated. Extended investigations will be necessary before a suitable plant for treating gas of such low helium content could be designed and operated on a large scale."

SUMMARY OF FIVE YEARS' U.S. AIR MAIL OPERATIONS

Statement of performance from May 15, 1918, the date of establishment, to December 31, 1923

Year.	1918	1919	1920	1921	1922	1923	Total.
Trips scheduled	793	1,761	4,941	9,202	8,291	8,072	33,060
Trips defaulted	32	87	1,009	512	292	225	2,157
Trips attempted	761	1,674	3,932	8,690	7,999	7,847	30,903
Trips uncompleted	—	—	328	400	145	111	984
Trips in fog	258	603	1,614	2,963	2,935	3,745	12,118
Trips in clear weather ..	535	1,060	2,318	5,727	5,064	4,102	18,806
Mileage scheduled	87,042	430,275	1,107,266	1,846,072	1,643,657	1,603,110	6,717,422
Mileage with mail	81,898	393,066	864,128	1,713,934	1,570,089	1,545,280	6,168,395
Mileage, ferry and test ..	20,650	68,229	184,316	198,799	186,714	325,142	983,850
Total miles travelled ..	102,548	461,295	1,048,444	1,912,733	1,756,803	1,870,422	7,152,245
Per cent. of performance ..	94.09	91.35	78.04	92.84	95.52	96.39	91.83
No. of letters carried ..	4,720,240	17,669,700	30,975,500	46,620,280	60,487,880	65,295,920	225,769,520
Cost of Service (\$)	76,616.59	320,647.70	979,997.25	1,499,584.10	1,417,374.82	1,910,422.54	6,204,643.00
Forced landings (mechanical)	22	69	445	632	206	175	1,549
Forced landings (other) ..	24	97	385	841	367	327	2,041

New York-Washington Route inaugurated May 15, 1918 (discontinued May 31, 1921). Chicago-St. Louis Route inaugurated August 16, 1920 (discontinued June 30, 1921). Twin Cities (Minneapolis and St. Paul)-Chicago Route inaugurated December 1, 1920 (discontinued June 30, 1921). First leg of New York-San Francisco Route inaugurated between Cleveland and Chicago May 15, 1919; second leg, New York to Cleveland inaugurated July 1, 1919; third leg, Chicago to Omaha, inaugurated May 15, 1920; last leg, Omaha to San Francisco, inaugurated September 8, 1920. The Transcontinental is the only route operated by the Post Office Department. Contract routes are in force between Seattle, Wash., and Victoria, B.C.; and between New Orleans and Pilotown, La. These contract routes were established for the purpose of advancing the delivery of foreign mails. At present the Post Office Department has no authority to establish routes for the carrying of mail on domestic or inland routes.

THE ROYAL AERO CLUB OF THE U.K.

OFFICIAL NOTICES TO MEMBERS.

Two-Seater Light Aeroplane Competition, 1924

THE Royal Aero Club has received a communication from the Air Council, stating that, on further consideration, it has been found necessary to modify the proposals regarding Certificates of Airworthiness, which appear in Supplementary Regulations No. 1 issued by the Royal Aero Club.

The amended Regulations are as under:—

Two-Seater Light Aeroplane Competition

Supplementary Regulations, No. 2

Air Navigation Regulations. Airworthiness Certificate.

Intending Competitors may in the ordinary way, if they desire, obtain Certificates of Airworthiness for general flying (*i.e.*, including aerobatic flights) for the light aeroplanes entered by them, but this will not be insisted upon as a definite condition of entry.

Exemption from the requirement to possess a Certificate of Airworthiness will be granted by the Secretary of State under Article 26 (1) of the Air Navigation (Consolidation) Order, 1923, in the case of light aeroplanes entered for this competition whilst flying to or from the competition or whilst taking part in it, subject to the following main conditions:—

- The aeroplanes must be certified by the Air Ministry as conforming with the special airworthiness requirements for light aeroplanes so far as the structure of the aircraft is concerned.
- Standard type and production tests will not necessarily be required for the engine, but exemption from such tests will be at the discretion of the Air Ministry.

Application for the certificates referred to at (a) above should be addressed to the Secretary, Air Ministry (C.A.L.).

To avoid delay, firms proposing to build light aeroplanes for this competition should notify the Air Ministry, who would then arrange for an official to visit the firms' works in order to inspect the General Arrangement Drawings and check the

designers' stress calculations. The Air Council reserve the right to call for such drawings as are normally required for a Certificate of Airworthiness.

Special Conditions and Requirements Applicable to Aircraft Entered for the Competition

Certificates of Exemption from airworthiness procedure for the purposes of the above competitions will be issued by the Air Ministry under the following conditions:—

- The aircraft shall satisfy the technical requirements laid down for Certificates of Airworthiness in C.A. Form 65, with the exception of the requirements outlined in para. 3 relative to engines.
- Type and endurance tests for engines will not necessarily be insisted upon, but this concession will be at the discretion of the Director of Research, Air Ministry. In the case, however, of this concession being granted, it will be necessary for the engines to be run both on the ground and in the air for a period of at least one hour in each case, to the satisfaction of the D. of R.
- As regards strength of structure, the standard required for the certificate of exemption is that for the aerobatic class (3rd category) Certificate of Airworthiness as laid down in A.M. 778, with the following exceptions:—

Cases (a 1) and (a 2) centre of pressure forward, engine on, and engine off—

Load Factor 6

Case (b). Centre of pressure back.

Load Factor 4½

The additions and alterations, as described in C.A. Form 65, Technical Requirements, para. (2), will still apply.

Offices: THE ROYAL AERO CLUB,

3, CLIFFORD STREET, LONDON, W. 1.

H. E. PERRIN, Secretary.

ROYAL AERO CLUB ANNUAL GENERAL MEETING

THE Annual General Meeting of the Royal Aero Club, was held at 3, Clifford Street, W.1, on Monday, March 31st.

Lieut.-Col. F. K. McClean, A.F.C., occupied the chair, and there was a large attendance of members, including Sir Capel Holden, Admiral Mark Kerr, Lieut.-Col. J. T. C. Moore-Brabazon, M.P., Rear-Admiral Sir Godfrey M. Paine, Sir Samuel Instone, General Bagnall-Wild, Commander F. L. M. Boothby, Col. M. O. Darby, Col. Alec Ogilvie, Mr. E. C. Bucknall, Mr. R. M. Balston, Mr. W. N. McClean, Group-Capt. F. W. Bowhill, Wing-Commander Nanson, Squadron-Leader W. H. Longton.

The gold medal, the highest honour the Club can bestow, was presented to the Chairman, Lieut.-Col. F. K. McClean, A.F.C., for his services to aviation. The first of such medals were awarded to the Wright brothers, and other recipients have been Louis Blériot, Henry Farman, Hubert Latham, the Hon. C. S. Rolls, Cecil Grace, Claude Grahame-White, S. F. Cody, Capt. Sir John Alcock, Lieut. Sir Arthur Brown, Sir Ross Smith, and Sir Keith Smith.

The presentation was made by Lieut.-Col. J. T. C. Moore-Brabazon, M.P., who referred to the valuable part that Col. McClean had taken in the early days of aviation, mentioning among other feats his flight over the Thames through the Tower Bridge in the early hours of the morning to forestall a French airman who was known to be contemplating that performance. Col. McClean, on receiving the medal, said he had always been lucky, and if he had done anything useful to the country that was his luck again.

In his remarks, the Chairman gave a *résumé* of the Club's activities during the year, and then followed with a digest of the chief events arranged for 1924.

In all the activities of the Club, it had, he said, been found of the highest importance to work in co-operation with the Society of British Aircraft Constructors and a Joint Standing Committee consisting of representatives of their Club and the S.B.A.C., which was in existence for that purpose.

In regard to the Club flying machines, they had now all been "written off." The four machines were purchased three years ago, and during the past year the last two were smashed beyond repair.

The Air Ministry was now considering a proposal to provide a certain number of light aeroplanes to approved Clubs, and the Committee was carefully watching the proposals so that the Club would derive the full benefit when the scheme matured.

After referring to the issue of Aviators' Certificates and to the F.A.I. Conferences, the Chairman said the Flying Services Fund which was still being administered by the Club distributed during the year £1,177 in grants and allowances to the dependants of Officers and men of the Royal Air Force killed during the War. It was worked in closest co-operation with the R.A.F. Memorial Fund, of which their Secretary, Lieut.-Commander H. E. Perrin, was a member of Committee and Chairman of the Grants Sub-Committee.

The following Members were elected to fill the nine vacancies on the Committee:

Group-Capt. F. W. Bowhill, C.M.G., D.S.O., R.A.F.; Major-Gen. Sir W. S. Brancker, K.C.B.; Ernest C. Bucknall; Lord Edward A. Grosvenor; Col. F. Lindsay Lloyd, C.M.G., C.B.E.; Lieut.-Col. J. T. C. Moore-Brabazon, M.C., M.P.; Lieut.-Col. M. O'Gorman, C.B.; Air-Commodore C. R. Samson, C.M.G., D.S.O., R.A.F.; Sir Mortimer Singer, K.B.E.

The following were unanimously elected:—*President*: Brig.-Gen. The Duke of Atholl, K.T., G.C.V.O., D.S.O.; *Vice-President*: The Duke of Sutherland. *Council*: S.A.I. Prince Roland Bonaparte; The Earl of Lonsdale; Admiral of the Fleet The Earl Beatty, G.C.B., O.M., G.C.V.O., D.S.O.; The Right Hon. Lord Hugh Cecil, M.P.; The Lord Howard de Walden; The Lord Montagu of Beaulieu, C.S.I.; Admiral of the Fleet The Right Hon. Sir Edward Seymour, G.C.B., O.M., G.C.V.O.; Admiral The Hon. Sir Edmund Fremantle, G.C.B., C.M.G.; The Right Hon. Sir Samuel Hoare, Bart., C.M.G., M.P.; Air Chief Marshal Sir Hugh M. Trenchard, Bart., G.C.B., D.S.O.; Sir David Salomons, Bart.; Sir Basil Zaharoff, G.B.E., G.C.B.; Count Henry de la Vaulx; The Right Rev. Bishop Welldon; Martin Dale; André Michelin.

The following addition to Club Rule 50 was confirmed:—

"The subscription for members who are officers serving in the Royal Air Force or the Royal Air Force Reserve, or officers (past and present) engaged in the Air Ministry Departments, shall be £2 2s. per annum."

The following motion, proposed by Commander F. L. M. Boothby, and seconded by Admiral Mark Kerr, was carried:—

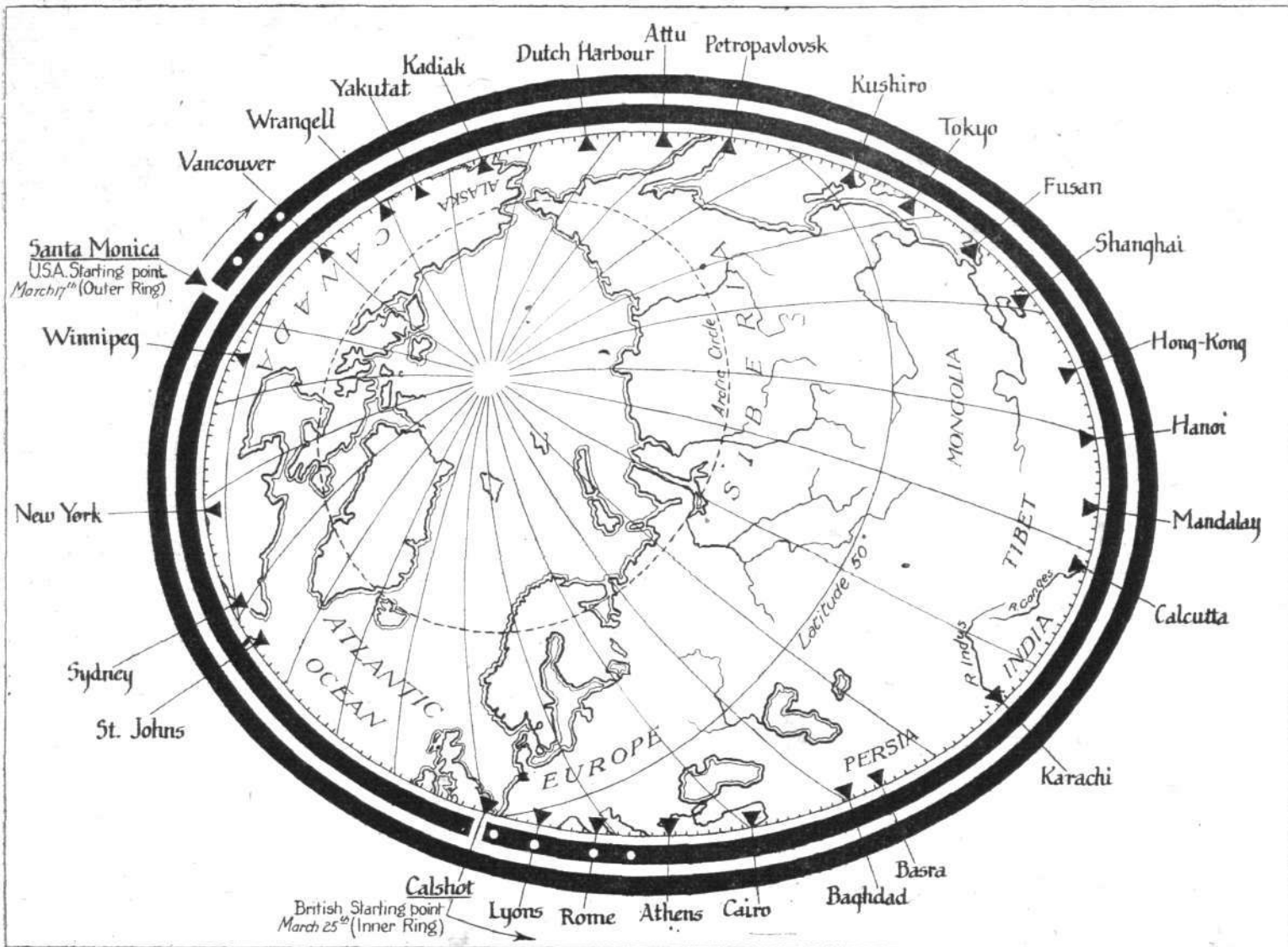
"That the Royal Aero Club should encourage all practicable branches of Aeronautics alike, and that a fair proportion of the Club's energies and funds should be devoted to airships, aeroplanes and seaplanes."

A vote of thanks to the Chairman, Secretary and Staff closed the proceedings.



THE WORLD-FLIGHT : A few more pictures from the start at Calshot, on March 25. 1. Three-quarter rear view of the Vickers "Vulture." 2. Interested visitors to Calshot: Lieut.-Col. Darby, Mr. Harold Perrin, and Mr. H. T. Vane, of Napier Engine fame. 3. Squadron-Leader MacLaren gives his cine camera a "trial run." 4. Taking on board stores for the journey. 5. The mascot which MacLaren would have liked to have taken: The daughter of the leader of the expedition tries the "mascot's seat." Her little brother is an interested on-looker.

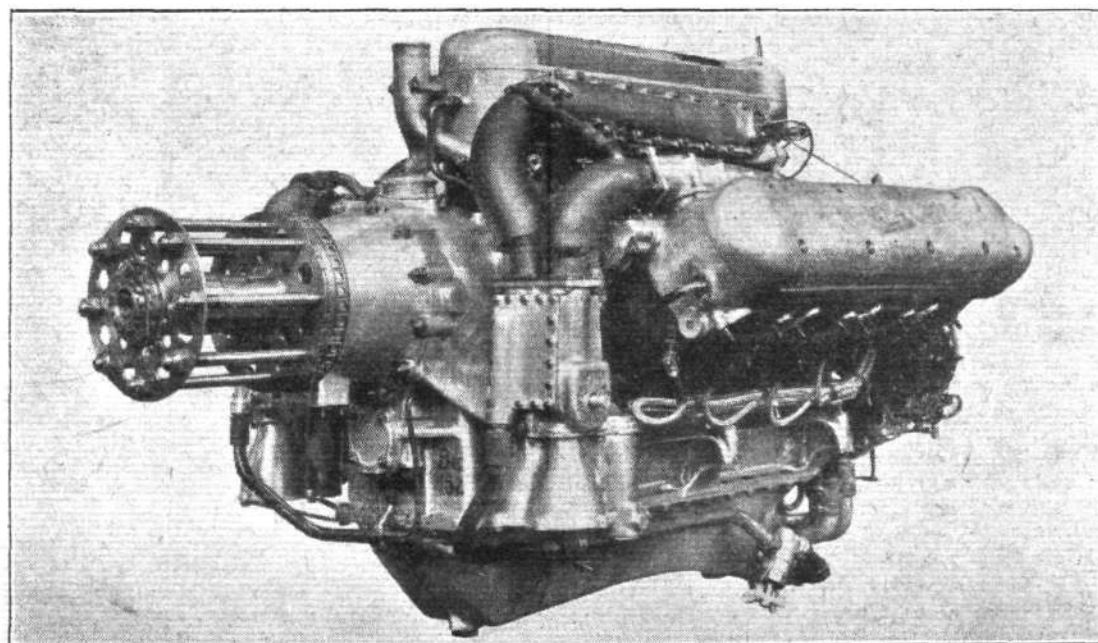
ROUND-THE-WORLD FLIGHTS



ROUND-THE-WORLD FLIGHTS: This sketch map has been prepared to show at a glance the position every week of the British and American crews as known up to Tuesday evening. It is proposed to publish this map week by week, and to mark on the two dark rings by white spots the approximate position reached by American and British aviators. The direction followed by the Americans is clockwise (i.e., east to west), and that of the Vickers "Vulture" anti-clockwise (west to east). The Americans left Santa Monica, California, on March 17; the British crew left Calshot (Southampton Water) on March 25. On Tuesday evening the Americans were still at Seattle, and the British down at Corfu.

BAD weather, minor mishaps, and, finally, engine trouble, were the principal items in the first week of the British Round-the-World Flight. At the time of writing, Squadron-

Leader MacLaren and crew are at the Southern end of the Island of Corfu, where engine trouble brought the Vickers-Napier "Vulture" amphibian down, fortunately, without



The Napier
"Lion" engine:
This engine,
similar to that
fitted on the
Vickers "Vul-
ture," will be
exhibited in the
motor section at
Wembley.

mishap. Thus, the distance so far covered is only round about 1,500 miles—out of 23,000 odd miles!

The American team, which reached Seattle on March 20, was scheduled to resume the journey early on Wednesday morning, April 2.

We give herewith the progress, day by day, of the British expedition up to Tuesday, April 1.

March 25.—Left Calshot 12.6 p.m., landed Havre, owing to bad weather, 3 p.m.

March 26.—Left Havre 10.53 a.m., arrived at Lyons 3.40 p.m. Encountered bad weather.

March 27.—Left Lyons 11.5 a.m., the start having been

delayed by a faulty oil pump, and descended owing to darkness at Civita Vecchia at 5.45 p.m.

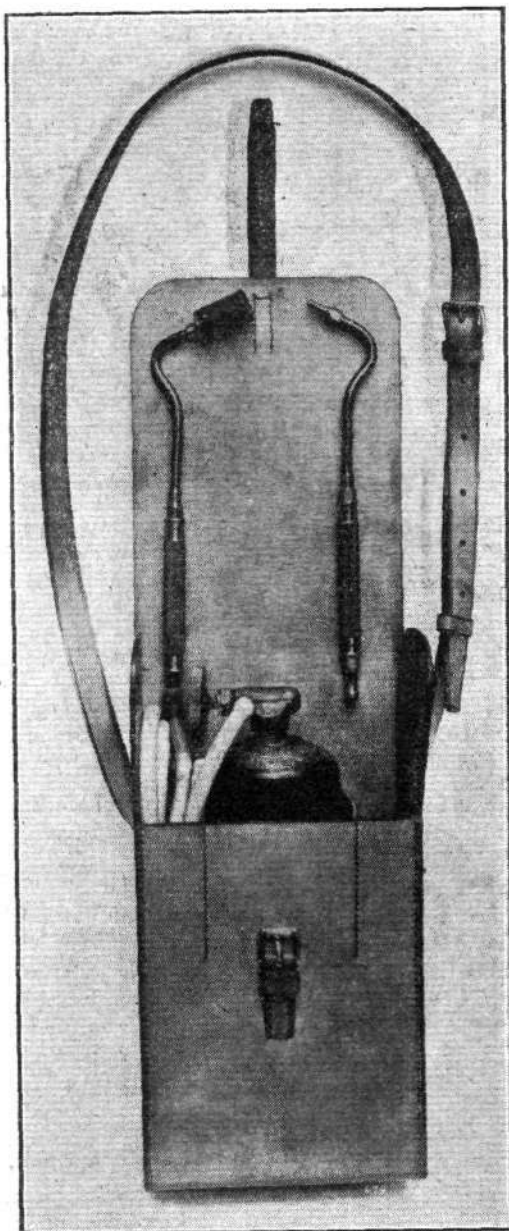
March 28.—Early start from Civita Vecchia, arriving at Rome 7.50 a.m. Bad weather and a damaged float sustained when starting necessitated a stay at Rome during the rest of the day, and the next.

March 29.—Repairs and overhaul at Rome.

March 30.—Left Rome at 6.25 a.m. in bad weather and arrived at Brindisi 10.45 a.m. Journey resumed at 12.30 p.m. for Athens, but when over Corfu, engine trouble developed compelling a forced landing in a lake near St. Matthew, South Corfu. Machine and crew reported uninjured.

WORLD-FLIGHT PROBLEMS

ORGANISING a world-flight, such as that upon which Squadron-Leader Archibald S. C. MacLaren has just embarked, is by no means so simple a matter as may be imagined. A chain of petrol and lubricating oil supply dumps has had to be established all round the world, and this work has not been



THE ROUND-THE-WORLD FLIGHT: An interesting item was included in the equipment taken on board the Vickers "Vulture" amphibian flying boat by Squadron-Leader MacLaren. This was a miniature brazing and soldering set, fitted up in a neat leather case containing blowpipes and the necessary small cylinder of dissolved acetylene for light brazing and soldering work. In case of need for more acetylene, Squadron-Leader MacLaren has a list of nearly fifty places on his route where the cylinder can be recharged, in fact a continuous chain of dissolved acetylene works throughout the entire route. The set was supplied by Allen-Liversidge, Ltd., through Messrs. Vickers.

without incident. The Shell Company, who have placed their organisation at the service of Major MacLaren for the purposes of putting down these dumps, and whose petrol and lubricating oil are being used exclusively by the British representative, had their arrangements upset by the Japanese earthquake, and new measures had to be devised at short notice. Dumps of Shell spirit (which it may be recalled, was also used exclusively in the great pioneer flights to Australia and across the Atlantic) and Shell motor oil had to be established in the almost uninhabited Aleutian Islands, a task with no small amount of risk, and one which might have proved an almost insurmountable difficulty, but for the splendid co-operation of the Canadian Government, with whose help a vessel was specially chartered.

It is interesting to note that, whilst Britain is represented in the flight by only one machine, with no financial co-operation upon the part of the Government whatsoever, America, engaged in the same enterprise, is solidly behind her four aviators, already on their way. All expenses are being defrayed by the American Government, and their Army and Navy have sent groups of officials to different points *en route* in order to assure there being no hitch in the necessarily involved arrangements.

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NOTICE TO AIRMEN

Official Air Routes: Observance of Regulations

1. THE attention of all pilots is drawn to the Air Navigation (Consolidation) Order, 1923, Schedule IV, Section III, paragraph 31, which requires that:—

"An aircraft flying along or in the neighbourhood of an officially recognised air route shall, so far as it may be safe and practicable,—

(a) Keep to the right-hand side of the route at a distance of not less than 100 yards therefrom.

(b) When flying beneath low clouds, fly at such a distance below the clouds as will enable it readily to see and be seen.

(c) When crossing from one side of the route to the other, cross at right angles thereto and as high as reasonably practicable.

(d) When flying on the left of and parallel to the route keep a distance therefrom of not less than 7 miles."

2. Certain portions of the following routes have been officially recognised by the authorities concerned:—

London-Paris. *Vide* Notice to Airmen No. 64 of 1922.

London-Brussels. " " " 5 of 1923.

Paris-Brussels. " " " 23 of 1923.

London-Rotterdam-Amsterdam. } *Vide* Notice to Air-

Amsterdam-Berlin. } men No. 8 of 1924.

Rotterdam-Berlin. }

Rotterdam-Brussels-Paris.

3. Instances have recently occurred in which pilots have been careless in the observance of the above rules which have been expressly designed for the general safety of all aircraft.

4. The importance of rigidly adhering to these regulations cannot be too strongly accentuated, and all pilots are invited to report at once to the Secretary, Air Ministry (D.C.A.), any infringements which may come to their notice.

(No. 22 of 1924.)

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A New Canadian Aerodynamics Laboratory

A NEW aerodynamic laboratory, including a 4-ft. wind channel, has just recently been opened at the Toronto University. Hitherto the laboratory had been installed in the Mechanical Building of the University, but last year, owing to necessary expansions in other directions, it was found to be impossible to continue the wind channel work in this building. The Department of National Defence, recognising the importance of maintaining the laboratory, granted to the University five thousand dollars towards the erection of a new building, the additional cost being borne by the University.

ROYAL AERONAUTICAL SOCIETY

Official Notices



Lecture.—The next lecture will take place at 5.30 p.m. on April 3, at the Royal Society of Arts, when Colonel the Master of Sempill, A.F.C., Associate Fellow, will read a paper on "The British Aviation Mission to the Imperial Japanese Navy."

Wilbur Wright Lecture.—Lieut.-Col. H. T. Tizard, A.F.C., Fellow, has accepted the Council's invitation to deliver the Wilbur Wright Memorial Lecture, which will take place at 8.30 p.m., on May 29, at the Royal Society of Arts, the subject being "Fuel Economy in Flight." This will be the twelfth lecture delivered in memory of Wilbur Wright, who died on May 30, 1912, under the auspices of the Society and the Trustees of the Wilbur Wright Memorial Lecture Fund. The full list of previous lectures is as follows:—

- 1913 Sir Horace Darwin, F.R.S.: "Scientific Instruments: Their Design and Use in Aeronautics."
- 1914 Sir R. T. Glazebrook, F.R.S.: "The Development of the Aeroplane."
- 1915 Professor G. H. Bryan, F.R.S.: "The Rigid Dynamics of Circling Flight."
- 1916 Mr. Griffith Brewer: "The Life and Work of Wilbur Wright."
- 1917 Lieut.-Col. M. O'Gorman, C.B.: "Looking Ahead."
- 1918 Dr. W. F. Durand: "Some Outstanding Problems in Aeronautics."
- 1919 Prof. L. Bairstow, F.R.S.: "Progress of Aviation in the War Period."
- 1920 Commander J. C. Hunsaker, U.S.N.: "Naval Architecture in Aeronautics."
- 1921 Mr. G. I. Taylor, F.R.S.: "Scientific Methods in Aeronautics."
- 1922 Lieut.-Col. A. Ogilvie, C.B.E.: "Some Aspects of Aeronautical Research."
- 1923 Prof. J. S. Ames: "The Relation between Aeronautic Research and Aircraft Design."

Associate Fellowship Qualifications.—In view of misapprehensions which appear to exist as to the necessity for taking the Society's examination for Associate Fellowship, attention is drawn to Clause IX of the Regulations, which read as follows:—

"IX.—EXEMPTIONS"

From the whole of the Examination

Any of the following qualifications will exempt a candidate from the whole of the examination:—

- (a) Any engineering degree, with advanced mathematics, of any University in the United Kingdom or in the British Dominions overseas. If the degree be without advanced mathematics, a further qualification of equivalent value will be required, or the candidate be required to take the Mathematics Section of the Examination of the Society.
- (b) The diploma in aeronautics at the Imperial College of Science and Technology, or the Cambridge B.A. in aeronautics.
- (c) Whitworth Scholarships.
- (d) The engineering diplomas of the Imperial College of Science and Technology, and of other Schools of Technology under the conditions relating to (a).

From Part I.

- (e) Matriculation at a University or equivalent examination; a science degree from any university of the United Kingdom or the British Dominions; or having obtained a Whitworth Exhibition; or having passed into R.N. College, Osborne; R.N.E. College, R.M.A., R.M.C., or R.A.F. College, Cranwell.

Other Exemptions

The Council will consider on its merits any other degree, diploma or certificate of equivalent standing to those enumerated above which may have been obtained by a candidate from any University or College in the United Kingdom or abroad."

W. LOCKWOOD MARSH,
Secretary.

THE NATIONAL SEAPLANE CLUB

An Interesting Innovation in Sporting Aviation

For a considerable number of years the seaplane type of flying machine has been somewhat neglected in this country, not only as regards service and civil aviation, but also, and perhaps even more so, in the matter of sporting aviation. Since the War the only two sporting events to be held exclusively for seaplanes have been the races for the Schneider Cup, one of which was held at Bournemouth in 1919 and the other at Cowes last summer. This year, fortunately, it is intended to make the race for the Cup presented by His Majesty the King a seaplane race, and thus interest will doubtless be revived in a type of machine which we, with our love of the sea and in view of the leagues of ocean separating the various parts of our Empire, above all others should be peculiarly qualified to develop. That being so, the foundation of a new club, to be known as the National Seaplane Club, can only be regarded as occurring at a very opportune moment, and if those interested in the foundation of the Club succeed in obtaining the support for which they are looking, it seems likely that the new Club may come into being.

Mr. H. F. Smalman-Smith, Hon. Secretary of the Club, explained some of its aims and objects to us recently. It is desired above all else to awaken interest in and understanding of the seaplane and its possibilities, not only sporting but also from the National and Imperial points of view. In order to do that it has been considered that one of the best ways in which this could be accomplished was the formation of a club, with its own club house and its own stretch of water on and over which members can enjoy the pleasures of seaplane flying. The founders of the new club were fortunate in securing the sympathy and active co-operation of the Lord of the Manor of Selsey, and as a result arrangements have been concluded for the purchase of Pagham Harbour, to the north-east of Selsey Bill, on the Sussex coast.

This stretch of sheltered water is of close upon 600 acres in extent, and is separated from the sea by a stretch of beach

also coming within the estate controlled by the management of the club, so that bathing huts to any requisite number may be erected for the private use of members. The club house which it is intended to erect will overlook the harbour and sea, and it is intended to incorporate in its design a balcony from which a splendid view of the sea will be obtained. If found necessary and advisable it will be possible to obtain a land aerodrome adjoining the Harbour so that members or visitors who desire to do so may arrive by air from their homes when visiting the club.

Incidentally, it may be mentioned that by a friendly arrangement with Capt. C. R. Douglas, proprietor of the Pagham Lagoon Club, members of the National Seaplane Club become members of the former without additional payment.

It is hoped to build up the membership of the club in County Sections, each with its President and Vice-Presidents, and the financial arrangements have been made on a basis of a minimum of 25 members from each county.

It may be mentioned that among the Vice-Presidents of the National Seaplane Club are Lord Montagu of Beaulieu, Lord Birkenhead, the Earl of Drogheda, Admiral the Hon. Sir E. Fremantle, Admiral Mark Kerr, General Bryan Mahon, and the Hon. Esmond Harmsworth.

The fee for founder members has been fixed at £5 5s., with an annual subscription fee of the same amount. Members of the Royal Air Force will pay half the founder-members' entrance fee, while officers of the R.A.F. joining after the opening of the club house will pay the full membership fee of £5 5s. Ordinary members joining later will pay a fee of £10 10s.

The temporary address of the National Seaplane Club is at Gloucester House, 19, Charing Cross Road, W.C. 2, and those interested are advised to write for full particulars to the Hon. Secretary, Mr. H. F. Smalman-Smith at that address.

IMPERIAL AIRWAYS, LTD.

The New £1,000,000 Aerial Transport Co.

On April 1 the new aerial transport company, with a capital of £1,000,000 and a Government subsidy of another £1,000,000, known as Imperial Airways, came into being, having been registered the day before. The agreement for the formation of the new company was, it will be remembered, signed last December, and it was originally intended to start operations in the New Year. The directors of the new company are as follows:—Sir Eric Geddes, chairman; Lord Invernairn; Sir George Beharrell, Sir Herbert Hambling and Major J. W. Hills, representing the Air Ministry; Colonel F. Searle (managing director); Colonel Barrett-Lennard, Sir Samuel Instone, and Mr. Hubert Scott-Paine.

Major G. Woods Humphrey, who was formerly the manager of the Daimler Airways, has been appointed manager, and that is the only appointment yet made, apart from that of Mr. S. Dismore, formerly with the Handley Page Transport, as secretary.

With the birth of the new company, various rumours of strikes and disagreements have prevailed, and statements regarding their positions have been issued by both sides—the company and the employees. Air Services were practically suspended, both Monday and Tuesday—but whether due to a strike or other causes, is somewhat obscure.

In any case, it was originally intended that the new company should, as a matter of business, make a thorough inspection and overhaul of the plant, etc., handed over to them by the independent companies which had hitherto operated the various air lines.

On March 31, Imperial Airways issued the following statement:—

A first meeting of the directors was held yesterday (Monday) afternoon of the new national aeroplane transport company which is to absorb today (Tuesday) the four existing operating companies, viz., Messrs. Handley Page, Ltd.; Instone Air Line, Ltd.; Daimler Hire, Ltd.; and the British Marine Air Navigation Co. The new national enterprise, with a capital of £1,000,000, and subsidised by the State with another £1,000,000 spread over a period of ten years, is to be known as "Imperial Airways, Ltd."

Sir Eric Geddes, chairman of the directors, presided. It was decided by the directors, in view of the necessity of centralising the systems of operation, inspection, and control, in connection with the various staffs, and aeroplanes of different types, as employed up to yesterday by the four existing companies, that the aerial services to and from the Croydon air-station should be suspended, temporarily, as from today (Tuesday) for a short period.

The terms of employment were considered which are to be offered pilots who will fly for the new company.

In this regard statements are erroneous which suggest that any pilots at the air station were on strike yesterday. Until last night they were still in the employment of the four existing companies, and the new Imperial Company has as yet made no appointments.

The directors decided that in the case of pilots who pass the rigorous medical tests which will be imposed, terms should be offered which, in the form of an annual retainer and "flying-time" pay, will ensure an annual income of £750 to £850, according to seniority, to pilots. For this they will be required to fly approximately an average of two hours a day. The records of existing companies show that the average earnings of pilots during the past twenty months have been in the neighbourhood of £680 a year. The suggestion is quite untrue, therefore, that there is any intention to effect "drastic cuts" in the salaries of aeroplane pilots.

On the other side, pilots and ground personnel have formed Unions, the former calling their association the Federation of Pilots; the latter being known as the Federation of British Aircraft Workers, both organisations to be registered as trade unions.

The secretary of the Pilots' Federation, Capt. F. L. Barnard, stated that the Federation was open to all pilots who earn their living by operating commercial aircraft and who hold licences issued by the Air Ministry. He said that practically

all the pilots with those qualifications were members of the Federation. Until matters are more advanced it is probably difficult to say exactly what the difference between the company's offer and the pilot's views will eventually resolve itself into, but, according to Capt. Barnard, the pilots would prefer payment on a 10s. per flying-hour basis rather than one of flying miles, on the ground that the mileage rate would penalise the pilot of the slower machines and also work against the pilot in bad weather flying, when the strain is heavier than in fair weather flying.

Capt. Barnard said that a deputation had waited upon a meeting of members of Parliament at the House of Commons, and had been assured by many members that they will support the pilots in their endeavour to secure the same pay that they have been receiving. The pilots also saw Mr. Leach, the Under-Secretary for Air.

The Federation of Aircraft Workers sent a letter, on Monday, to the new company, outlining their proposals, and stating that the offer already made is not acceptable, as the present rates are too low to be regarded as a permanent basis.

Imperial Airways, Ltd., issued a further statement on Tuesday night in which, after outlining the formation and policy, etc., of the new company, it stated that:—

The company is now prepared to receive applications from pilots for appointments at the rates of remuneration agreed by the directors, namely:—

Year.	Salary.	Flying Pay per Mile.	Total Income.*
1st	400	1 1/2	755
2nd	425	1 3/4	780
3rd	450	1 3/4	805
4th	475	1 3/4	830
5th	500	1 3/4	855

Colonel Searle, the managing director of Imperial Airways, denied that the suspension of the air services was due to any differences with the personnel, and said that the company is anxious that the pilots shall receive every consideration possible.

The pilots, on Tuesday, sent a deputation to the Air Ministry, consisting of Lieut.-Col. C. L. P. Henderson, president of the Federation of Pilots, and Capt. F. L. Barnard, the secretary, Mr. Ben Tillett, M.P., and Mr. Robert Williams being also with them in an advisory capacity. The deputation was received by the Secretary for Air, Lord Thomson. After the interview the Federation of Pilots issued a statement, based on the petition presented, in which they say that they regard the mileage basis as illogical, because it would be measured on land miles, whereas air miles should be taken into consideration. On many journeys against ordinary adverse winds this might involve an increase of at least 30 per cent. and sometimes more. The general custom in the past had been to base flying pay on an hourly basis, apart from a satisfactory "retainer." There was every reason why this should be adhered to, especially in view of the fact that some of the machines taken over by the company would be 20 miles per hour slower than others.

Comparing the published offer of the new company with the salaries earned under the old régime, they say that they found that a Handley Page pilot received £915, an Instone pilot £857, while Daimler pilots had been earning on an average £1,000 a year. "It is therefore not correct to say that the terms offered by the new company are as good as those which have prevailed hitherto."

They claimed that the pilots had been very badly treated by reason of the facts (a) the lateness at which the negotiations had been opened, (b) the formulation of such a completely inadequate scale of pay, and (c) the extraordinarily hostile manner in which their representations had been met, including the application to the Royal Air Force for a body of men to take their places.

* If flying an average of two hours a day at 85 miles an hour.

THE INSTONE AIR-LINE

ON March 31, at Croydon Aerodrome, a "Farewell" luncheon was given by the Directors of the Instone Air Line to members of the staff, to mark the merging of the company into the Imperial Air Transport Co. Sir Samuel Instone presided,

and among those present were Mr. Alfred Instone, Mr. Theodore Instone, Mr. G. Holt Thomas, Mr. Alfred Davies, M.P., Lieut.-Col. A. Ogilvie, Lieut.-Col. W. A. Bristow, Capt. P. D. Acland, Mr. H. T. Vane, and Mr. H. Scott-Paine.

Sir Samuel Instone, who proposed the health of the officials and the staff, said he wished to pay a tribute to the pilots and the technical staff for the fine record the line had achieved. He recalled the start of the Instone Air Line, when, in 1919, as a coal-exporting firm, they acquired an aeroplane to carry documents between Cardiff, London and the Continent, and in 1922, when they inaugurated the Brussels service. Thanks to the devotion of the staff and the skill of their pilots, the Instone Air Line had never lost a life. Their pilots had flown 628,000 miles, and the aggregate mileage of all the pilots who had been in their service totalled somewhere about a million.

One of their machines (D.H. 34 G-EBBR) had flown 127,700 miles—a record for this type of machine—while the Vickers "Vimy" had done 107,950 miles, also a record, for a twin-engined machine. It was more wonderful still, continued Sir Samuel, that these machines were then outside on the aerodrome, as good as ever they were. One of the Napier "Lion" engines had done 1,100 hours' flying service, or about 111,000 miles, and still had a very long life before it.

Sir Samuel Instone referred to Capt. Barnard, the firm's

first pilot, who had won for him the King's Cup, and had flown in the company's service the equivalent of 12 times round the equator; and to Col. Bristow, of Messrs. Ogilvie and Partners, who had been the guiding spirit of their technical staff; and to Major Greer and Mr. Eskell on the commercial side.

Major Greer (general manager) said that the principle laid down by the Instone Air Line was that safety should come before everything. In his opinion, the status of commercial pilots was bound to rise, rather than fall, as longer routes were operated and faster machines became available. Greater skill would be required, and he thought the Directors were right in regarding pilots not as aerial chauffeurs, but as officers holding high responsibility.

Mr. Holt Thomas and Mr. Alfred Davies also said a few words.

A presentation from the staff to Mr. Alfred Instone took the form of a clock mounted in the boss of the propeller of the aeroplane in which Capt. F. L. Barnard won the King's Cup in 1922.

Mr. T. Instone announced that the Directors had voted 500 guineas for division among the staff of the Air Line.

IN PARLIAMENT

Aircraft Carriers

CAPT. VISCOUNT CURZON on March 26 asked the Parliamentary Secretary to the Admiralty how many aircraft carriers are now completed for service in the Royal Navy; what is the flying equipment of each carrier; and whether each carrier completed and in full commission has her full flying equipment?

Mr. Ammon: Three aircraft carriers are now completed for service, and these are in commission. The equipment of each carrier varies as occasion requires, both as to type and number of machines. The answer to the last part of the question is in the affirmative.

R.A.F. Aerodromes

SIR E. HUME-WILLIAMS asked the Under-Secretary of State for Air whether, among the number of aerodromes which were first erected at great expense, and then after the War pulled down at a great expense, there remain any foundations or sites which can be utilised for the aerodromes now required for the proposed extension of the Air Force; and where such sites are situated?

Mr. Leach: In answer to the first part of the question, it has been decided to re-acquire for the expanded Air Force a number of War-time aerodromes in which the aerodrome buildings are still standing, and the re-acquisition of others is under consideration. The existence of such aerodromes, with buildings or foundations, though an important consideration, is not, however, the most important one, which is the suitability of location in regard to defence requirements. I could only name at present a few re-acquired sites, such as Tangmere and Filton; the remainder had better not be named while negotiations for purchase or lease are still proceeding.

Air Ministry and Ex-Service Men

LIEUT.-COL. MOORE-BRABAZON on March 28 asked the Under-Secretary of State for Air what are the names and categories of all ex-Service men dismissed from the Department of Civil Aviation or transferred from that department to other sections of the Ministry within the last 12 months; and why such officers were dispensed with while an officer with practically no ex-Service qualifications is still retained?

"Ad Astra"

MR. HERBERT G. HAMPTON, who set himself to record his impression of the very beautiful Air Force War Memorial on the Victoria Embankment, has now produced an exquisite



etching of the monument, in keeping with the dignity of his subject. Sir Reginald Blomfield and Mr. W. Reid Dick, respectively the architect of the memorial and the sculptor who modelled the bronze eagle and globe, can be gratified at so charming a memento of their work as embodied in Mr. Hampton's picture. The aspect chosen by the artist brings in a suggestion of the Houses of Parliament and Westminster Bridge, whilst the perfection of reproduction by Mr. W. J. Stacey, of 71, Great Russell Street, W.C., adds further to the reality of the picture. As altogether, we understand, only 400 signed and numbered artist's proofs have been printed (200 of which are delicately printed in colours), the plate already having been destroyed, those who are fortunate enough to secure one of Mr. Herbert's etchings will have something

that the few only will be able to include in their collection. The plain artist's proofs are published at 1 guinea and the coloured specimens at 1½ guineas.

Mr. Leach: In answer to the first part of the question, the appointments of Brigadier-General Festing, Controller of Aerodromes and Licensing, and Lieut.-Commander Bernard, Senior Assistant, were terminated on abolition of their posts, and no other suitable appointments could be offered to them; Mr. Ransom, Junior Assistant, was transferred on reduction of Civil Aviation establishment to the educational staff; and Mr. Lilley, Junior Assistant, whose appointment in the same directorate was terminated on reorganisation, has been offered a post in the Aeronautical Inspection Department. As regards the second part of the question, the officer referred to is filling a post for which he was considered to be more suitable than three of the officers named above, while the fourth (General Festing) could hardly be regarded as a candidate for it.

Lieut.-Colonel Moore-Brabazon asked the Under-Secretary of State for Air (1) whether, in view of the fact that competent ex-Service men at present in the directorate of contracts are not to be discharged from the Air Ministry, he will give an undertaking as to the minimum length of time that such men shall be retained, in order that they may not work under the constant anxiety of knowing that they may be discharged at any moment to make room for the promotion of permanent civil servants; (2) whether it is his intention to replace the ex-Service men who have been employed in the engine and supply sections since the inception of the Air Ministry by non-technical permanent civil servants; and whether, in view of the undesirability of transferring such important work as the purchase of technical equipment for the whole of the Air Force to non-technical non-flying permanent civil servants, and of the hardship involved in discharging ex-Service men who have devoted 10 years of their lives to Army and Government service, he will find some other way by which avenues of promotion can be opened to permanent civil servants already in employment?

Mr. Leach: As regards the first question, I regret that I am unable to give the undertaking suggested, which would be contrary to the policy of the public service in regard to unestablished staff. As regards the second question, I would refer the hon. and gallant member to my reply to Mr. Hogge on March 6.

Aeroplane Attack on Moors

In connection with the Spanish operations against the Moors, it is reported that the Moors secured the services of a foreign pilot, and that the Spanish air observers had spotted some improvised hangars, near Alhucemas. A flight of 32 Spanish aeroplanes, therefore, set out, amongst other things, to destroy them. Some 500 bombs were dropped, the Moors replying with rifle fire, and wounding one of the pilots, Lieut. Ansaldo—who, despite a serious leg wound, managed to reach the Spanish lines in a 40-minute flight.

Australian Air Force to be Enlarged

In addition to expansions in the Navy, the Australian Federal Government, it is reported, also intends to strengthen the Air Force. It is expected an announcement to this effect will be made by the Prime Minister, Mr. Bruce, in his speech on the work of the Imperial and Economic Conferences held in London.

Further Prizes for Lympne

It is now announced that the Society of Motor Manufacturers and Traders have offered a prize of £150 for the longest distance covered during the forthcoming light 'plane competitions which the Royal Aero Club is organising at Lympne between September 8 and 13 next. This brings the total of prizes up to £3,750, which amount should be sufficient to ensure an extraordinarily good entries list. There is even a possibility of further prizes being offered.

Congratulations

READERS of FLIGHT, and especially our older readers, will be interested to learn that on March 27 a son was born to Dr. Marie Stopes, wife of Mr. H. V. Roe, of Givons Grove, Leatherhead. It is scarcely necessary for us to remind our readers that Mr. H. V. Roe was associated with his brother Mr. A. V. Roe in his early pioneer work in aviation, retiring from the firm of A. V. Roe and Co., Ltd., in 1917.

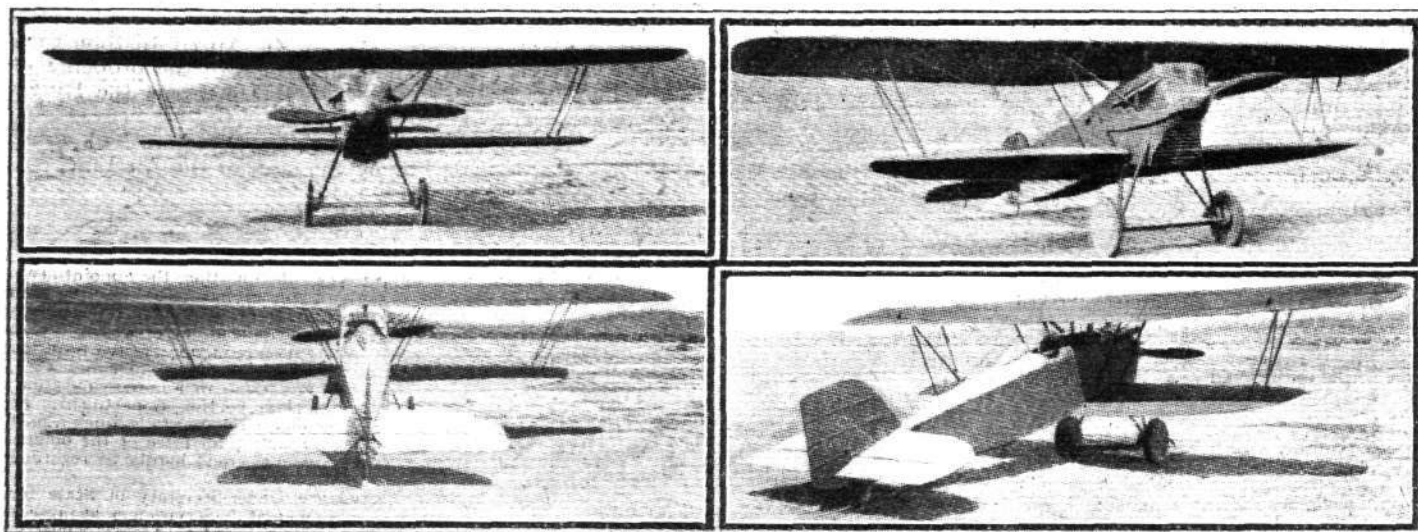
THE BOEING P.W.-9 PURSUIT BIPLANE

THE U.S. Army Air Service recently entered into a contract with the Boeing Airplane Co., of Seattle, Wash., for the construction of a number of pursuit 'planes known as the type P.W.-9. One of these machines was submitted by the Boeing Co. to the Army Air Service for test a little while back, and as a result, having acquitted itself with honours, the contract for a series of similar ships was given.

In the design and construction of the P.W.-9, four cardinal points were kept in mind—performance, quality of material and workmanship, ease of maintenance, and low cost. In each of these items, the resultant product has, it is claimed,

similarity begins and the other finishes is hard to say. The fuselage is constructed throughout of welded steel tubing, as are also the tail surfaces, wing struts and landing gear. All welds are electrically made by means of a new process developed by the Boeing engineers after several years of research. By use of this process, it is possible to retain the physical and chemical properties of the material being welded to a greater extent than has heretofore been obtained by any other process.

The wing cellule is of the single-bay type, employing only two flying and one landing wire on each side, thus enabling



Four views of the Boeing Pursuit Biplane (500 h.p. Curtiss D-12 engine), a number of which have been supplied to the U.S. Army Air Service. It has a speed range of 60-165 m.p.h.

made good, while additional features, such as visibility, satisfactory armament installation, roominess of cockpit and accessibility of instruments, have all been worked out to a high degree of perfection. These results have been attained by avoiding any so-called "trick" design or installation, and the success of the machine is due to refining already accepted conventional types of construction, rather than by discarding what has proved true and attempting the solution by radical departures.

As far as general appearance goes the P.W.-9 resembles both the S.E. 5A and the Fokker D. VII.—but where one

extremely rapid assembly. The interplane struts are of the "N" type. The upper wing, which is considerably larger than the lower one, measures 32 ft. in span.

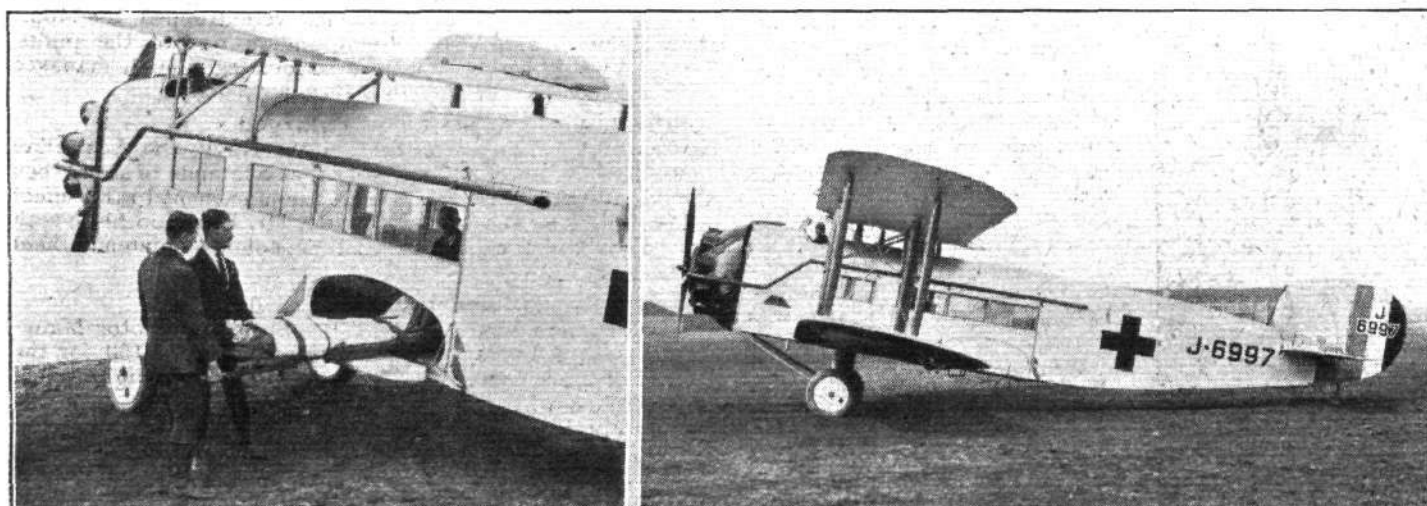
A conventional V-type landing gear is employed. The engine fitted is a 500 h.p. Curtiss D-12, and the radiator is of the standard drawn-copper tube type, with the mounting designed in such a way that resistance is not increased, although the cooling area is not in any way hindered.

The performance of the P.W.-9 has so far given 165 m.p.h. at sea-level, a landing speed of 60 m.p.h., and a service ceiling of 23,500 ft. The gross flying weight is 2,835 lb.

Institute of Aeronautical Engineers

We are informed that the lecture on "Radial Engines for Aircraft," which was to have been read before the Institution

of Aeronautical Engineers on April 11 by Mr. S. M. Viale has been cancelled, and that no meeting will take place on that day.



A BRISTOL "AMBULANCE" AEROPLANE: Our photographs show the new Bristol specially arranged for Red Cross work. The large cabin, white enamelled throughout, measures 10 ft. 6 ins. in length, and is 5 ft. 9 ins. high and 4 ft. wide. The large windows can be opened along the entire length of both sides so as to give ample ventilation even in hot climates. Two stretcher cases and four sitting cases can be carried, or the accommodation can be varied to allow of three of the passengers being accommodated on stretchers. A wide entrance has been made in the port side, opposite the main entrance door, which is on the starboard.

The engine fitted is a Bristol "Jupiter" of 400 h.p.

THE ROYAL AIR FORCE

London Gazette, March 25, 1924

Air-Commodore C. A. H. Longcroft, C.B., C.M.G., D.S.O., A.F.C., is appointed Director of Personal Services, Air Ministry; March 5.

General Duties Branch

The follg. are granted permanent commns. in ranks stated (March 26):—Sgdn.-Ldr. S. R. Watkins, A.F.C.; Flight-Lieut. H. H. Down, A.F.C.

The follg. are granted short-service commns. in ranks stated, with effect from, and with seny. of, the dates indicated:—*Flying Officers (for seven years on the Active List)*.—R. F. Carter (Lieut., R.N., retd.), A. L. R. Duke (Capt., Indian Army, retd.), W. F. Humphrey (Lieut., R.N., retd.), M. E. B. P. Storrie (Lieut., R.N., retd.), G. N. P. Stringer (Lieut., R.A.R.O.); March 15. *Pilot Officers on Probation (for five years on the Active List)*.—B. O. Babb, V. B. Bingham-Hall, M.C., H. E. N. Burton, J. M. Cohu, F. H. S. David, C. Feather, E. A. H. Fisher, R. A. Ford, A. N. Francombe, V. G. H. Gee, M. W. Goldie, C. E. Hillier, L. M. Johnston, W. J. Lewis, H. R. Lowry, H. F. Luxmoore, A. L. Macmillan, A. W. B. McDonald, A. D. McDowall, A. W. G. Martin, H. S. Martin, W. V. R. Nicholl, H. M. G. Parker, D. K. Power, G. B. M. Rhind, C. D. Shearing, E. L. Shepherd, C. S. Staniland, H. W. P. Stewart, N. A. West; March 15. R. R. Bennett; March 21.

The follg. Pilot Officers are promoted to rank of Flying Officer (Feb. 16):—D. Macfadyen, N. Vincent, D.F.C.

Stores Branch

Flight-Lieut. E. N. E. Waldron is granted a permanent commn. in rank stated for accountant duties; March 26. Sgdn.-Ldr. H. E. J. Hewitt is transferred to Stores Branch from General Duties Branch, with effect from, and with seny. of, May 1, 1923.

Medical Branch

Flight-Lieut. E. G. S. Hall, M.B., resigns his short service commn.; March 11. Flight-Lieut. (Hon. Sgdn.-Leader) A. E. F. F. Huntsman relinquishes his temp. commn. on account of ill-health, and is granted the rank of Squadron-Leader; Feb. 8.

Reserve of Air Force Officers

The follg. are granted commns. on probation in General Duties Branch in ranks stated (March 25):—

Class A.—Flying Officer K. Don. *Pilot Officers*.—C. K. Carter, C. O. Hinks, J. M. Mathieson.

Class B.—Pilot Officer C. H. L. Needham.

Flying Officer K. C. L. Gorrings is transferred from Class A to Class C; Jan. 8, 1923. The follg. Officers are confirmed in rank, with effect from the dates indicated:—*Flying Officers*.—J. L. S. Gill, A.F.C.; March 2. J. M. Leach; March 5.

Memorandum

The permission granted to 2nd Lieut. F. W. Levy to retain rank is withdrawn on his enlistment in the Army; March 6.

ROYAL AIR FORCE INTELLIGENCE

APPOINTMENTS.—The following appointments in the Royal Air Force are notified:—

General Duties Branch.

Wing Commanders: A. H. Jackson, to Air Ministry, for Personnel Staff duties. 23.4.24. A. T. Whitelock, to No. 3 Group Headquarters, Spittlegate, for Air Staff duties. 15.4.24. A. D. Cunningham, C.B.E., to R.A.F. Depot, pending disposal on transfer to Home Estab. 17.2.24. C. L. Courtney, C.B.E., D.S.O., to H.Q., India, whilst attending course at Staff College, Quetta. 1.3.24. A. C. Winter, O.B.E., to Egyptian Group H.Q., for temporary duty. A. Corbett-Wilson, to H.Q., Egypt, for Tech. Staff duties. 10.3.24. H. le M. Brock, D.S.O., to Air Ministry, for Air Staff (Training) duties. 7.5.24. B. E. Smythies, D.F.C., to Air Ministry, for Air Staff (Operations) duties. 1.4.24.

Squadron Leaders: T. F. Bullen, O.B.E., to No. 4 Flying Training School, Egypt. 1.2.24. J. Leacroft, M.C., to R.A.F. Depot, on transfer to Home Estab. 17.2.24. P. C. Maltby, D.S.O., A.F.C., to No. 1 Sch. of Tech. Training (Boys), Halton. 15.4.24. G. R. M. Reid, D.S.O., M.C., to No. 99 Sgdn., Netheravon. 23.4.24. G. G. Adeley, to H.Q., Inland Area, Uxbridge. 15.4.24. J. C. Quinell, D.F.C., to No. 9 Sgdn., Upavon. 23.4.24. R. M. Hill, M.C., A.F.C., to H.Q., Inland Area. 23.4.24. Sir N. R. A. D. Leslie, Bt., C.B.E., to Special Duty List as Asst. Secretary (Air) to the Committee of Imperial Defence. 23.4.24. G. W. Murlis-Green, D.S.O., M.C., to No. 41 Sgdn., Northolt. 15.4.24. R. M. Bayley, D.F.C., to Air Ministry. 1.5.24. C. H. Elliott-Smith, A.F.C., to No. 24 Sgdn., Kenley. 23.4.24. J. C. Russell, D.S.O., to No. 3 Sgdn., Worthy Down. 23.4.24. G. S. M. Insall, V.C., M.C., to R.A.F. Depot, pending disposal. 1.4.24. F. E. Hellyer, O.B.E., to R.A.F. Depot, on transfer to Home Estab. 3.3.24. R. C. Hardstaff, to Armament and Gunnery Sch., Eastchurch, on transfer to Home Estab. 1.4.24. A. H. Measures, O.B.E., to Engine Repair Depot, Egypt. 10.3.24. D. Harries, A.F.C., to No. 4 Flying Training Sch., Egypt. 16.2.24. A. Coningham, D.S.O., M.C., D.F.C., to Egyptian Group H.Q. 23.2.24. R. T. Leather, A.F.C., to H.Q., India. 1.3.24. C. W. Nutting, O.B.E., D.S.C., to Air Ministry. 1.4.24. C. J. Mackay, M.C., D.F.C., to R.A.F. Depot. 1.4.24.

Flight Lieutenants: W. C. Day, M.C., to No. 4 Flying Training Sch., Egypt. 4.3.24. D. F. Stevenson, D.S.O., M.C., to H.Q., Inland Area, Uxbridge. 23.4.24. M. Thomas, D.F.C., A.F.C., to Air Ministry. 1.5.24. J. A. Glen, D.S.C., to Air Ministry. 23.4.24. A. G. Bishop, A.F.C., to No. 24 Sgdn., Kenley. 23.4.24. L. H. Cockey, to No. 3 Sgdn., Worthy Down. 23.4.24. F. M. F. West, V.C., M.C., to No. 17 Sgdn., Hawkinge. 23.4.24. K. L. Harris, to Air Ministry. 1.5.24. A. P. Maurice, D.F.C., to No. 17 Sgdn., Hawkinge. 1.4.24. A. L. Chick, A.F.C., to R.A.F. Depot, on transfer to Home Estab. 16.2.24. A. P. V. Daly, to No. 99 Sgdn., Netheravon. 4.4.24.

T. W. Elmhirst, A.F.C., to R.A.F. Depot, on transfer to Home Estab. 8.3.24. T. Le G. Pynches, to Aeroplane and Armament Experimental Estab., Martlesham Heath. 27.3.24.

Flying Officers: J. C. Belford, to R.A.F. Depot (Non-effective Pool), on transfer to Home Estab. 22.2.24. C. W. McK. Thompson, to Aeroplane Experimental Estab., Martlesham Heath. 1.4.24. R. G. Chapell, to Sch. of Tech. Training (Men), Manston. 27.3.24. J. A. Stedman, to Sch. of Tech. Training (Men), Manston. 10.4.24. H. W. Taylor, to No. 17 Sgdn., Hawkinge. 1.4.24. J. Bowen, to Basrah Group H.Q., instead of to H.Q., Iraq, as previously notified. 18.1.24. D. C. Prance, to No. 3 Sgdn., Manston. 1.4.24. A. R. Prendergast, to R.A.F. Base, Leuchars. 1.4.24. H. A. Boniface and E. F. Colam, to remain at Aircraft Depot, India, instead of to No. 27 Sgdn., as previously notified. E. C. Ridlington, to Trans-Jordanian H.Q. 10.3.24. A. H. C. Derby, to No. 7 Sgdn., Bircham Newton. 28.3.24. E. R. Maddox, M.C., to R.A.F. Depot, on appointment to a Short Service Comm. 25.3.24.

Pilot Officers: H. J. Storey, to Aircraft Depot, India. 15.3.24. S. A. Young, to No. 17 Sgdn., Hawkinge. 1.4.24. F. E. Watts, to No. 24 Sgdn., Kenley, on appointment to a Permanent Comm. 24.3.24. R. R. Bennett, to No. 5 Flying Training Sch., Shotwick, on appointment to a Short Service Comm., for course of instruction. 21.3.24. G. H. Rawlinson and A. S. Hutton, to remain at Aircraft Depot, India, instead of to No. 60 Sgdn., as previously notified.

Store and Accountant Branch.

Flight Lieutenants (Stores): A. W. Turner, to R.A.F. Depot (Non-effective Pool). 1.4.24. D. Barron, to H.Q., Coastal Area. 27.3.24. N. Robertson, to R.A.F. Depot (Non-effective Pool), on transfer to Home Estab. 28.2.24. *Flight Lieutenant (Accountant)*: P. J. Farmer, to R.A.F. Base, Gosport. 14.4.24.

Flying Officers (Stores): M. R. Preece, to No. 100 Sgdn., Spittlegate. 1.4.24. A. T. Shaw, to Air Ministry. 1.4.24.

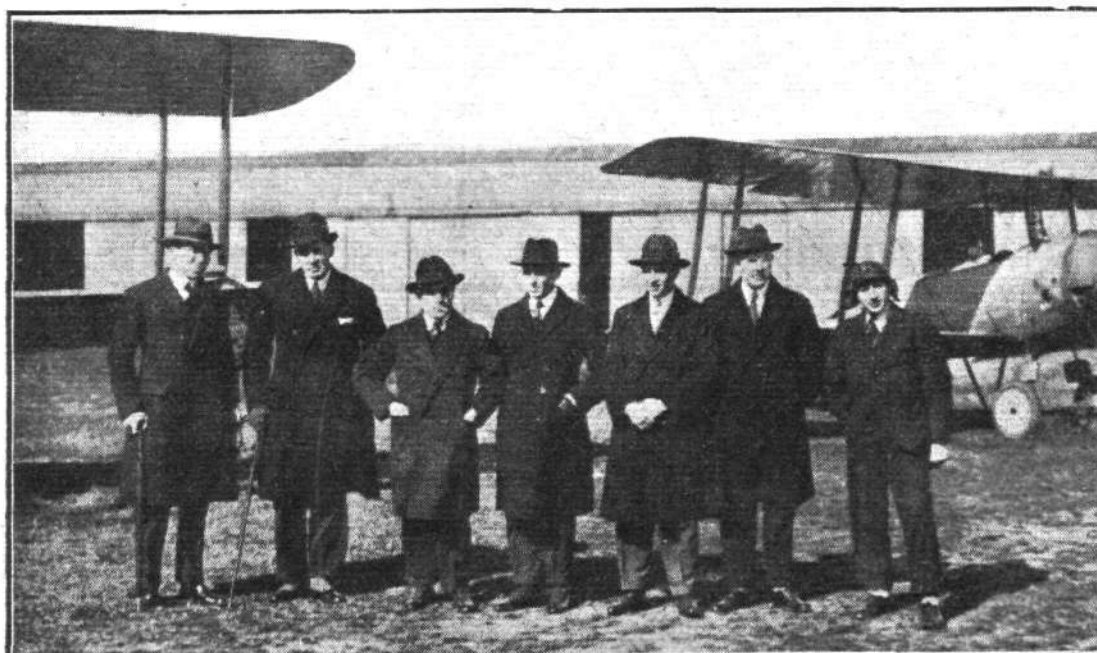
Flying Officers (Accountant): J. Baines, to Sch. of Naval Co-operation, Lee-on-Solent. 17.4.24. S. C. Gibbs, to No. 4 Sgdn., S. Farnborough. 8.4.24. R. W. Leamon, to R.A.F. Base, Leuchars. 23.4.24.

Pilot Officer (Accountant): F. C. Warner, to R.A.F. Depot. 21.3.24.

Medical Branch.

Flight Lieutenants: T. J. Thomas, M.B., to Basrah Combined Hospital, Iraq. 19.2.24. J. C. Osburne, M.B., to H.Q., Iraq. 14.3.24. E. G. Howell, to H.Q., Egypt. 15.3.24.

Flying Officer F. K. Wilson, M.B., to H.Q., Iraq. 14.3.24.



A Tribute to British Aircraft: Major Pedro Zanni (centre) and Lieut. Nelson Page (third from left), of the Argentine Air Service, pay a visit to the Waddon Works of the Aircraft Disposal Co., Ltd. Major Zanni has come to London with the intention of purchasing British aeroplanes for use in an attempt to fly round the world, with England as the starting and finishing point. Major J. Stewart and Captain Grant, of the A.D.C., may be seen in the above group standing second from the left and second from the right respectively.

AIR POST STAMPS

By DOUGLAS B. ARMSTRONG

Air Post in Costa Rica

THE latest claimants to rarity in the form of flown covers emanate from the Central American state of Costa Rica, and only three examples are believed to exist, all of which are in the hands of American collectors. It appears that owing to heavy rains in December last the train service between San José, the capital, and Puerto Limon, the port of Costa Rica was temporarily suspended for a period of three weeks. The American Minister at San José accordingly made arrangements to use U.S. Army airplanes from the Canal zone to convey the mails to the coast. The first air mail was despatched on January 5, 1924, and three letters sent from the U.S. Legation were endorsed as follows:—"Forwarded by First Aeroplane mail from San José to Port Limon, courtesy U.S. Army 'planes, Roy T. Davis, Am.Min., G. Nocilva, D.G.C." Franked with contemporary 5 centimes postage stamps of Coast Rica, they were received at Washington nine days later, viz., on January 14, 1924.

A Costa Rican Air Stamp

DESPITE the American Minister's superscription, this was not actually the first aerial mail to be flown in Costa Rica. As far back as April 10, 1921, an attempt was made to carry out a postal flight between San José (Costa Rica) and Managua (Nicaragua). Letters were carried for a special fee of 1 colon in addition to the ordinary rate of postage, which was defrayed by a supplementary stamp in oblong format appropriately inscribed "Primo Correo Aereo Costa Rica—Nicaragua." The experiment proved a failure owing to the pilot losing his bearings, and, after crossing and recrossing the frontier eventually descended in the neighbourhood of Puerto Limon. The Costa Rican air post stamp exists in two colours, viz. green and lilac, both with a yellow-tinted background, and is excessively rare, whether unused or upon "flown" cover.

The U.S. military airplanes which operated between San José and Puerto Limon, early in the present year did not confine their services to the official mail of the American Legation, but made a series of trips conveying ordinary postal matter entrusted to them by the Costa Rican post office. Such letters bear the impress of a circular cachet inscribed round its circumference "CORREO AEREO X SAN JOSÉ—LIMON" with a date in January, 1924, in three lines in the centre. Postage was prepaid in current postage stamps of the Republic.

More Air Stamp Essays

APROPOS of a recent paragraph anent air stamps that failed to materialise I am reminded that ten years ago both the French and Russian governments projected stamps of this character. The French stamp was to have depicted an aeroplane encircling the Eiffel Tower, whilst Russia proposed to issue stamps of several values representing various types of aircraft.

First Egyptian Air Post?

How many readers can produce envelopes or postcards carried on a postal flight from Khartoum to Heliopolis made by the aviator Pourpe early in the year 1914? Personally, I have never seen an example of the special cancellation which, it is understood, was employed on that occasion. It is said to have included the name of the pilot as well as the names of the termini "Cairo-Khartoum." The amount of mail carried is believed to have been extremely small, and "flown" covers are undoubtedly rare.

Aerogrammes

THE existing series of Austrian air post stamps is about to be augmented by a 400 kronen value.

A proportion of the total printing of the latest air post stamps of Lithuania, amounting to 50,500 copies of all values, has been appropriated to charitable purposes and overprinted with various armorial devices, sold at a premium in aid of widows of Lithuanian soldiers.

Two complete sheets of the 50 centimes and one each of the 75c. and 2 francs air post stamps of Morocco were inadvertently issued *imperforate* towards the end of last year.

The face values of the forthcoming Siamese air post stamps are reported to be :—10, 15, 30 satangs, 1, 2, 3, 5, 10 and 20 ticals.

Readers are invited to forward to the Editor of *FLIGHT* letters, etc., bearing aerial stamps or postmarks for mention in this column, as well as out-of-the-way varieties, etc.

We shall also be pleased to hear from correspondents interested in air-stamp collecting, and to answer any queries.

Rolls-Royce, Ltd.

THE Directors in their seventeenth annual balance sheet (for the year ended October 31, 1923) state that after paying or providing for all trading expenses and suitable depreciation of buildings, machinery and plant, and charging repairs and replacements to revenue, there is available for distribution the sum of £156,708 3s. 4d., together with the amount of £8,410 0s. 1d. carried forward from the previous year. (The usual rate of depreciation has been applied to the value of buildings and plant. Last year an abnormal amount was applied in respect of certain machine tools and plant.)

The sales of the 40/50 h.p. chassis have not been affected by the introduction of the 20 h.p. chassis. The sales of the latter have been very satisfactory, and have quite justified its creation.

Whereas in the year ended October 31, 1922, the trading profits were, owing to the engineering lock-out, small (but these profits were added to by contributions from the taxation and other reserves), the profits for the year now under review are trading profits.

The Directors recommend that the balance of profits should be utilised as dividend of 8 per cent. per annum on amounts paid up (subject to Income tax), £65,025 11s. 4d.; to transfer to Income tax account, £20,000; to transfer to reserve fund, £70,000; to carry forward to next year, £10,092 12s. 1d.

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SIDE-WIND

MR. W. LIONEL NAYLOR, the Export Director of Messrs. Naylor Brothers (London) Ltd., the Varnish and Paint Manufacturers of Slough, has just set off on a long tour round the world, during which he intends visiting Canada, where the Naylor products are largely used, and the United States. New Zealand will be his next place of call, and the return home will probably include Australia, Japan, China and the East.

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PUBLICATIONS RECEIVED

Broadcast Listeners Year Book, 1924. Radio Press, Ltd. Price 1s 6d.

Aeronautical Research Committee, Reports and Memoranda: No. 883. (Ae. 114).—An Investigation of the Influence of Downwash on the Rotary Derivative M_q. Part II. The Effect of Airscrew Slipstream. By L. F. G. Simmons and E. Ower. September, 1923. Price 6d. net. No. 884. (Ae 115).—The Effects of Tip Speed on Airscrew Performance. By G. P. Douglas and R. McKinnon Wood. October, 1922. June, 1923. Price 1s. 6d. net. London: H.M. Stationery Office, Kingsway, W.C.

Welding Rods and Fluxes. The Suffolk Iron Foundry (1920), Ltd., Stowmarket.

Revue Juridique Internationale de la Locomotion Aérienne. March, 1924. Edition Aérienne, 4, Rue Tronchet, Paris.

Cambridge Instruments at the British Empire Exhibition, Wembley, 1924. The Cambridge and Paul Instrument Co., Ltd., 45, Grosvenor Place, London, S.W. 1.

Berger's Mercury, No. 115, Vol. X. Lewis Berger and Sons, Ltd., Homerton, London, E. 9.

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AERONAUTICAL PATENT SPECIFICATIONS

Abbreviations: cyl. = cylinder; I.C. = internal combustion; m. = motor. The numbers in brackets are those under which the Specifications will be printed and abridged, etc.

APPLIED FOR IN 192

Published April 3, 1924

33,538. J. A. DAVIES. Flying-machines. (212 309.)
33,631. SOC. ANON. DES ATELIERS D'AVIATION L. BREGUET. I.C. engines. (194,261.)
35,260. ARMSTRONG-SIDDELEY MOTORS, LTD., and H. N. WYLIE. Metal members for use on aircraft. (212,344.)

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